

# Exhibit 22

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*Counsel for Movant Anthony M. Hernandez Valadez*

**IN THE UNITED STATES BANKRUPTCY COURT  
 FOR THE DISTRICT OF NEW JERSEY**

In re:	:	Chapter 11
	:	
LTL MANAGEMENT LLC,	:	Case No. 21-30589
	:	
Debtor.	:	
	:	

**DECLARATION OF MOHANA ROY, M.D.**

Pursuant to 28 U.S.C. § 1746, I, Mohana Roy, M.D., declare under penalty of perjury as follows:

1. I am an adult over the age of 18 years and not a party in this case. I have personal knowledge of the facts set forth in this declaration, except for such facts that have been made

known to me in forming an opinion, in which case each such fact is of a type on which professionals in my field reasonably rely in forming such opinions. The facts stated in this declaration that are within my personal knowledge are true. If asked, I could and would testify competently to the truth of and foundation for each fact and opinion asserted within this declaration

2. I received my medical degree from Albert Einstein College of Medicine in New York. I completed residency training at Beth Israel Deaconess Medical Center in Boston, Massachusetts. I also completed my fellowship training in Hematology and Oncology at Stanford University. Presently, I am a medical oncologist and a clinical assistant professor at Stanford University School of Medicine, Department of Medicine, Division of Medical Oncology. I have expertise in lung and thoracic cancers, but with a broad clinical interest in hematology and oncology. I am the recipient of both a clinical innovation award through Stanford University and the Merit Award from the American Society of Clinical Oncology. I presently serve as an Associate Medical Director for Quality at the Stanford University Cancer Center. Attached hereto as **Exhibit A** is a copy of my current curriculum vitae, which truthfully states my qualifications to provide expert testimony in this action.

3. As an oncologist, I am involved in the examination and treatment of patients afflicted with malignant mesothelioma. While treating these patients, I consult with other oncologists and advise patients regarding their treatment options. Depending on the patient, such options might include surgery, chemotherapy, immunotherapy, and/or radiation therapy. I review radiology to help identify their illness, determine progression of the disease, the efficacy of treatment, and whether there are any viable treatment options.



4. Anthony Michael Hernandez Valadez is 23 years old and was born on September 23, 1998. He has been under my care and treatment since January 2022 for his pericardial mesothelioma. I most recently examined Mr. Valadez in May 2022. I have reviewed his medical records, lab results, test results, and radiology, including X-rays, CT scans, and PET scans. I summarize herein Mr. Valadez's treatment and care for his pericardial mesothelioma.

5. As set forth in my Progress Notes from January 28, 2020, a true and correct copy of which is attached hereto as **Exhibit B**, Mr. Valadez developed a cough and shortness of breath in 2020. [Exh. B at 30.] He had been admitted with several echocardiograms performed on him, which showed pericardial effusion. [*Id.*] On January 4, 2022, Mr. Valadez developed worsening adenopathy and neck swelling. [*Id.*] The CT scan of the neck revealed a masslike pericardial effusion, along with multiple enlarged soft tissue lymph nodes and edema extending through the chest wall and pleural effusions. [*Id.* at 31.] Six days later, a biopsy of his lymph tissue was taken and the results confirmed a diagnosis of malignant mesothelioma. [*Id.*]

6. On February 14, 2022, Mr. Valadez had a health and physical examination with thoracic surgeon Leah Backhus, M.D. at Stanford University Hospital. Attached hereto as **Exhibit C** is a true and correct copy of Dr. Backhus' report dated February 14, 2022.

Dr. Backhus stated that Mr. Valadez "presents with symptomatic rapid reaccumulation of malignant pleural effusions [status post] recent thoracentesis." [Exh. C at 112.] She noted that Mr. Valadez has an "[o]verall poor prognosis with advanced local disease." [*Id.* at 112.]

Dr. Backhus recommended that Mr. Valadez "[c]onsult to cardiac surgery for pericardiectomy consideration." [*Id.*]

7. On February 17, 2022, Mr. Valadez underwent a pericardiectomy, a bilateral PleurX catheters, and a resection of the mediastinal mass and thymectomy. Attached hereto as



**Exhibit D** is a true and correct copy of the Operative Reports dated February 17, 2022.

Mr. Valadez's treating surgeons found "[d]iffuse tumor involvement of the pericardium with areas of invasion into the myocardium." [Exh. D at 119, 121.] The clinical diagnosis included bilateral pleural effusions, pericardial constriction, and pericardial mesothelioma. [*Id.* at 118.]

8. On March 15, 2022, Mr. Valadez underwent genetic testing. The Stanford Actionable Mutation Panel for Fusions is a targeted next generation sequencing ("NGS") method that detects potentially clinically actionable gene fusion events in cancer. Several genes are tested by NGS, including ALK. Mr. Valadez had no fusions detected, including ALK. Attached hereto as **Exhibit E** is a true and correct copy of Mr. Valadez's genetic testing results.

9. As set forth in my Progress Notes from March 18, 2022, a true and correct copy of which is attached hereto as **Exhibit F**, I saw Mr. Valadez for follow-up and initiation of his first cycle of chemotherapy. [Exh. F at 191.] In my notes, I mentioned that a CT scan of Mr. Valdez's chest showed "multiple pericardial masses nearly encasing the heart, thoracic lymphadenopathy, retrocrural lymphadenopathy, and adjacent right upper lobe and right middle lobe interlobular septal thickening, concerning for residual/recurrent malignancy." [*Id.* at 186.] Given that mesothelioma is a signal tumor of asbestos exposure, I took Mr. Valadez's social history to determine whether he was previously exposed to asbestos. [*Id.* at 189.] I noted that Mr. Valadez's mother "reports using large amounts of baby powder (Johnson and Johnson) in [Anthony's] childhood." [*Id.*] I also stated that there are "no other exposures to hair salon products, chemicals in labs," and "no clear asbestos exposure" from attending school "in an old building." [*Id.*] Ever since his diagnosis, Mr. Valadez has suffered from anxiety and depression.

10. As detailed in my Progress Notes from April 29, 2022, a true and correct copy of which is attached hereto as **Exhibit G**, I saw Mr. Valadez for consideration of his third cycle of

chemotherapy. Prior to this visit, Mr. Valadez underwent chemotherapy on March 18, 2022, and April 9, 2022. He has not tolerated his prior chemotherapy treatments and complained of mouth sores, linear dermatitis, frequent nausea, lack of appetite, shortness of breath, acute anemia, and severe lack of stamina. His prior treatments required hospital admissions for symptom control. Further, the drainage on the PleurX catheters have decreased significantly.

11. On May 6, 2022, I had a routine visit with Mr. Valadez. A true and correct copy of Mr. Valadez's medical records regarding this visit is attached hereto as **Exhibit H**. Because of his fatigue, cytopenia, and anemia, Mr. Valadez did not undergo his third round of chemotherapy. The day before this visit, Mr. Valadez had a CT scan of his chest which showed "increased diffuse nodular interlobular septal thickening, right greater than left lung, as well new and increasing pulmonary nodules," which is "concerning for progression of disease." There was "[e]xtensive thoracic lymphadenopathy and multiple pericardial masses nearing encasing the heart." Because his CT scan shows progression of disease, Mr. Valadez's chemotherapy treatments were put on hold and he will instead undergo immunotherapy.

12. Malignant mesothelioma is an aggressive cancer with a grave prognosis that is invariably fatal. The interval between diagnosis and death is often short. The risk of adverse effects, including death, the probability that severe complications of treatment will occur, and the likelihood of opportunistic infections or unexpected rapid tumor progression, is very high. During my oncology practice, I have treated other patients with mesothelioma. In each case, this cancer took their lives.

13. There is no cure for mesothelioma. Once a person is diagnosed with mesothelioma, the median life expectancy is less than two years. The average life expectancy is less for patients diagnosed with pericardial mesothelioma, like Mr. Valadez. Indeed, many of the



cases of pericardial mesothelioma reported in the literature were not diagnosed until after death, because it is so aggressive. Patients who are diagnosed with mesothelioma may undergo treatment, such as chemotherapy, surgery, and/or radiation with the purpose of slowing the progression of the mesothelioma. These treatments do not cure mesothelioma. Even if the patient is a proper candidate and elects to undergo treatment, the treatment may have only a modest impact on the patient's survival. Mr. Valadez has not tolerated chemotherapy well. His tolerance to chemotherapy will continue to decline as his mesothelioma rapidly advances. As his disease rapidly progresses, Mr. Valadez's discomfort, fatigue, disruption of normal body processes, and pain will continue and increase in severity, despite intervening pain medication and treatment. The most likely outcome is that Mr. Valadez ultimately will die of complications from mesothelioma.

14. The pericardial mesothelioma from which Mr. Valadez suffers can change clinical and symptomatic directions quite quickly. Several factors may influence the progression of cancer, including the side effects from therapy, alterations of the normal physiology, and stress, which has both emotional and physical components. Mr. Valadez has anxiety and fear because of his terminal mesothelioma, which are known emotional stressors in terminal cancer patients. Many types of stress activate the body's endocrine (hormone) system, which in turn can alter the way the immune system functions. Fatigue is also a major psychological symptom. Fatigue is the most common and distressing symptom associated with cancer and cancer therapies. Physical and emotional stress both contribute to a cancer patient's fatigue and fatigue generally becomes progressively worse as a malignancy progresses. As his illness progresses, Mr. Valadez will become less able to attend trial and participate meaningfully in litigation. A prolonged case



lasting over a period of many months can increase a patient's stress level and exacerbate fatigue, with its attendant negative consequences to the patient's cancer fighting ability.

15. I have reviewed numerous medical articles that report the relationship between pericardial mesothelioma and asbestos exposure. For example, the World Health Organization states that like "pleural mesothelioma, a large portion of mesotheliomas of the pericardium are induced by asbestos." [World Health Organization Classification of Tumors (2004) at p. 286, a true and correct copy of which is attached hereto as Exhibit I.]

16. Cases of mesothelioma have been observed in persons who have used cosmetic talc powder. [Emory, et al., *Malignant Mesothelioma Following Repeated Exposures to Cosmetic Talc: A Case Series of 75 Patients* (2020) Am. J. Ind. Med. 484, a true and correct copy of which is attached hereto as Exhibit J.] In Emory, et al., a patient whose only known exposure to asbestos was repeated use of cosmetic talc powder later developed pericardial mesothelioma. [*Id.* at 484-486.]

17. In sum, Mr. Valadez has aggressive pericardial mesothelioma, an asbestos-related terminal cancer with a dismal prognosis. Based on (i) my examination and treatment of Mr. Valadez, (ii) my review of his medical records, (iii) my experience and training involving mesothelioma patients, (iv) the aggressive nature of Mr. Valadez's cancer, and (v) the distinct progression of his mesothelioma, it is my professional medical opinion that there is substantial medical doubt of Mr. Valadez's survival beyond six months from the date of this declaration. Further, based on Mr. Valadez's social history, the only known exposure on a regular basis is his use of Johnson's Baby Powder. Therefore, in reviewing the known literature on this rare condition and Mr. Valadez's medical records, as well as my experience, education, and treatment

of Mr. Valadez, it is my opinion, to a reasonable degree of medical certainty, that it is more likely than not that this exposure increased his risk of developing pericardial mesothelioma.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief. I executed this Declaration on June \_\_\_, 2022 at San Jose, California.

By:   
\_\_\_\_\_  
MOHANA ROY, M.D.

# Exhibit A



**Stanford University School of Medicine  
CURRICULUM VITAE**

**Mohana Roy, M.D.**

[mohanar@stanford.edu](mailto:mohanar@stanford.edu)

**Professional Experience**

7/2021- Present      **Clinical Assistant Professor**  
Department of Medicine, Division of Oncology  
Stanford University, Stanford, CA

**Clinic Addresses:**

2589 Samaritan Drive, San Jose, CA 95124  
875 Blake Wilbur Drive, Palo Alto, CA 94304

**Education & Training**

7/2018- 6/2021      Hematology/Oncology Fellow, Department of Medicine, Stanford University,  
Stanford, CA

6/2015 – 6/2018      Resident in Internal Medicine, Beth Israel Deaconess Medical Center (BIDMC),  
Boston, MA, Clinical Fellow in Medicine, Harvard Medical School

8/2011 – 5/2015      M.D. Albert Einstein College of Medicine of Yeshiva University

7/2006 – 6/2010      B.S. University of California, Davis, CA  
Major: Neurobiology, Physiology and Behavior, Graduated with Highest Honors

**Research Experience**

7/2019- 6/2021      *Distress Screening via Patient Reported Outcome Tools*, Stanford Cancer Center,  
Stanford, CA  
Leading analysis of patient reported distress screening questionnaires implemented at a large academic  
cancer center, with interest in characterizing types of responses and identify signals for high risk patient  
groups. Built collaboration with data science team for analysis.

10/2018- 6/2021      *Patient Reported Outcomes in Advanced Cancers*, Stanford Cancer Center,  
Stanford, CA  
Primary fellow for randomized clinical trial analyzing a patient reported cloud-based application for  
symptom monitoring, currently helping expand clinical trial to second academic site.

5/2016 – 6/2018      *Potentially Preventable ED Visits in patients with Cancer*, Division of  
Hematology and Oncology, BIDMC, Boston, MA  
Led team of nurses, administrators, and physicians in quality improvement study to reduce potentially  
preventable ED visits in cancer patients, through a series of plan-do-study-act (PDSA) cycles.

6/2014 – 6/2015      Clinical Directors Network, New York, NY,  
Helped develop community-based health projects, including patients reported outcomes in depression  
care and cancer in low income urban women, a proposal for capacity building for HIV prevention, and a  
training curriculum through webcasts for outcomes research topics.

6/2012      Mount Sinai Environmental Health Center

Project leader on a community-based research project with focus on communicating health results

### **Grants**

6/2020-6/2022

Funding Source: Clinical Innovation Fund, Stanford Cancer Institute:

Project: Implementation of a Language Concordant Distress Screening Program

9/2017-6/2018

Funding Source: Center for Healthcare Delivery Science, Beth Israel Deaconess Medical Center

Project: Patient-Reported Outcomes and Symptom Management Pathways to Reduce Preventable ED Visits and Hospitalizations for Patients with Cancer

### **Leadership Experience**

4/2022- Present

**Associate Director for Quality, Stanford Cancer Center**

7/2020-6/2021

Stanford Hematology/Oncology Fellowship *Chief Fellow for 2020-2021*,

7/2019-6/2020

Fellowship Council Member

5/2020- 6/2021

*Associate Editor*, theMednet.com

1/2020- Present

Stanford Cancer Quality Council Member

11/2018-6/2021

*Co-founder* of Stanford Medicine's Fellows' College

10/2018-Present

Member, Global Oncology Group, Stanford University

10/2016 –6/2018

BIDMC Housestaff Council Member

6/2012 – 6/2013

American Medical Association (AMA), Albert Einstein College of Medicine  
Chapter: President (2012-2013), Member of the Global and Public Health  
National Standing Committee (2012-2013)

7/2011 – 6/2015

Einstein Community Health Outreach Clinic (ECHO): Board member and Session coordinator

### **Training Experience**

2021: Clinical Effectiveness Leadership Training, Stanford University

2020: Essentials of Clinical Research, Stanford University

2020: Quality Improvement Practicum, Moving from Theory to Action, Institute for Health Improvement

### **Memberships**

2020- Present International Association For the Study of Lung Cancer (IASLC)

2022- Abstract reviewer for World Lung Conference

2019- Present

American Society of Clinical Oncology (ASCO)

2018- Present

Association of Northern California Oncologists (ANCO)

### **Honors and Awards**

2021

ASCO Quality Symposium Merit Award Recipient

2021

Humanism in Hematology and Oncology Award, Stanford Combined Fellowship

2020

ANCO Travel Award

2020

ASCO Annual Meeting Merit Award Recipient

2014

Alpha Omega Alpha

2010

Phi Beta Kappa

### **University Teaching:**



2/2022 Clinical Discussant- INDE 210 Foundation of Pathology and Cancer Biology, Stanford University School of Medicine- Winter 2022  
5/2022 Speaker for “Global Oncology”- MED 233 Global Health: Beyond Diseases and International Organizations, Stanford University School of Medicine- Spring 2022

### **Invited Discussions and Conferences:**

2021 Clinical Discussant ESMO Lung Clinical Congress Consultants  
2022 OncLive Clinical Discussant

### **Invited National Lectures:**

2/2022- *Collecting Patient Reported Quality of Life through PROMIS at Stanford Cancer Center*- presented at Epic PROMIS Collaborative National Working Group.

### **Public Health Projects**

1/2019- Present: Volunteer, Global Onc. Inc- Assisting in capacity building services through non-profit organization focused on access and care delivery globally of oncological care.  
- Building HPV educational materials (ex: comic book distributed widely in Nigerian schools)  
- Focus on measuring quality metrics and guidelines for first oncological unit in Belize

### **Publications**

*Published in peer-reviewed journals*

1. Dickerson, JC et al. (**Roy, M**-last author). Implementing Patient-Directed Cancer Education Materials Across Nigeria. *Journal of Global Oncology*, 2021: doi: 10.1200/00.1.00233
2. Generalova Olga and **Roy, M\*** (\*co-first authors), Hall, E, Shah, SA et al. Implementation of a cloud-based electronic patient-reported outcome (ePRO) platform in patients with advanced cancer. *Journal of Patient Reported Outcomes*, 2021: doi: 10.1186/s31687-021-00358-2
3. **Roy, M**, Purington, N, Liu, M, Blayney, D, Kurian, A, and Schapira, L. Limited English Proficiency and Disparities in Healthcare Engagement among Breast Cancer Patients. *Journal of Oncology Practice*, 2021: doi: 10.1200/OP.20.01093
4. Neal, JW\* and **Roy, M\*** (\*co-first authors), Bugos, K, Sharp, C, Galatin, P, et al. Distress Screening through Patient Reported Outcomes Measurement Information System (PROMIS) at an Academic Cancer Center and Network Site: Implementation of a Hybrid Model. *Journal of Oncology Practice*, 2021. doi:10.1200/OP.20.00473
5. **Roy, M.**, Halbert, B., Devlin, S., Chiu, D., Graue, R., & Zerillo, J. A. From metrics to practice: Identifying preventable emergency department visits for patients with cancer. *Supportive Care in Cancer* 2020. doi:10.1007/s00520-020-05874-3
6. Saleem, A, Joshi, R, Lei, L, Lezama L, Raghavan S, Neishaboori, N, **Roy, M**, et al. Novel IRF8 and PD-L1 molecular alterations in systemic EBV-positive T- cell lymphoma of childhood. *Human Pathology: Case Reports* 2020. 19,200356. doi:10.1016/j.ehpc.2020.200356
7. Claudio, L, Gilmore J, **Roy, M**, and Brenner, B. Communicating environmental exposure results and health information in a community-based participatory study. *BMC Public Health* 2018. 18(1). doi;10.1186/s12889-018-5721-1

*Book Chapters and Reviews*



1. **Roy, M**, and Ramchandran, K. Symptom relief and palliative care in gynecologic oncology. *Current Opinion in Obstetrics and Gynecology*. Feb 2020, 32(1): 65-75. Feb;32(1):65-75. doi: 10.1097/GCO.0000000000000601
2. **Roy, M**, and Padda, Sukhmani K. Chapter 10, EGFR Mutated Non-Small Lung Cancer: A Clinical Approach. *Lung Cancer, 1<sup>st</sup> edition*. In Press.
3. **Roy, M**, Kung HJ, and Ghosh PM. Statins and prostate cancer: role of cholesterol inhibition vs. prevention of small GTP-binding proteins. *American Journal of Cancer Research*. 2011; 1(4):542-61.

*Meeting Abstracts and E-publications:*

1. **Roy, M**, Saleem, A, Said, A et al. Efficacy of an educational comic book for HPV vaccination information in Nigeria. E-Publication at: Annual Meeting, American Society of Clinical Oncology, June 2022
2. **Roy, M**, Gensheimer, M, Chang, D et al. Use of systemic cancer treatments based on validated survival prediction model in metastatic cancer. E-Publication at: Annual Meeting, American Society of Clinical Oncology, June 2022
3. **Roy, M**, and Schapira, L. Cancer Clinical trial Consent Forms: A Readability Analysis. Presented at: Annual Meeting, American Society of Clinical Oncology, May 2020.
4. D'Abronzio L, **Roy, M**, Lara P, de Vere White, R, Pan, CX, and Ghosh PM. Stimulation of ErbB3 induces resistance in patients on everolimus +bicalutamide: Results from a phase II study. Proceedings of the American Association of Cancer Research Special Conference- Targeting PI3K/mTOR signaling in Cancer. 2011.
5. Mooso, B, Madhav, A, Johnson, S, **Roy, M**, Moore, ME, Moy C, Loreda, GA, Mehta RG, Vaughan ATM, and Ghosh, PM. Androgen Receptor regulation of Vitamin D receptor in response of castration resistant prostate cancer cells to Vitamin D5- a calcitriol analog. *Genes and Cancer*. 2010 Nov 16;1(9):927
6. **Roy, M.**, Moore, ME, deVere White, RW, and Ghosh, PM. Multiple effects of the IGF-1R inhibitor PQIP on prostate cancer cells. Proceedings of the American Association for Cancer Research Annual Meeting. 2008.

**Presentations:**

*Oral Presentations:*

- |        |  |
|--------|--|
| 3/2021 | <b>Roy, M</b> , Ramchandran K. Supportive Care in Cancer. 20 <sup>th</sup> Multidisciplinary Management of Cancers- association of Northern California Oncologists [ <i>Session initially postponed to 2021 given coronavirus related rescheduling</i> ]   |
| 1/2021 | <b>Roy, M</b> .Healthcare Utilization with an Electronic Patient Reported Outcome (ePRO) tool for Symptom Management in Thoracic Cancers. Presented at: International Association for the Study of Lung Cancer (IASLC) 2020 World Conference on Lung Cancer: Singapore, Worldwide Virtual Event. |
| 3/2017 | <b>Roy, M</b> , Teja, B, Leahy, K, Davies, L, and Mukamal K. Outpatient depression screening in cancer patients. Presented at: Society of General Internal Medicine Regional Meeting; Boston, MA.  |

*Poster Presentations:*

- |        |   |
|--------|---|
| 6/2022 | Dickerson, J, Myall, N, <b>Roy, M</b> et al. Implementation and efficacy of a fellow-led, case-based noon lecture series. Presented at: Annual Meeting, American Society of Clinical Oncology, June 2022. |
|--------|---|



- 10/2021 **Roy, M**, Rosenthal, S, Shah, MP et al. Patients' Perception of Meaning of Life and Needed Support Before and After Cancer Treatment Initiation. Presented at: International Society for Quality of Life Research Meeting 2021 Virtual.
- 9/2021 **Roy, M**, Rosenthal, S, Shah, MP et al. Association of treatment type with patient-reported quality of life in cancer distress screening. Presented at: American Society of Clinical Oncology Quality Care Symposium; Boston, MA/Virtual.
- 9/2021 **Roy, M**, Fardeen, T, Cabot, A, Bruzzzone B et al. Association of telemedicine use with disparities in cancer distress screening for patients with limited English proficiency. Presented at: American Society of Clinical Oncology Quality Care Symposium; Boston, MA/Virtual.
- 1/2021 **Roy, M**, and Wakelee, HW. The Mutational Landscape in South Asian Patients with Non-Small Cell Lung Cancer at an US Academic Medical Center. Presented at International Association for the Study of Lung Cancer (IASLC) 2020 World Conference on Lung Cancer: Singapore, Worldwide Virtual Event.
- 5/2020 **Roy, M**, Neal, JW, Bugos, K, et al. Distress Screening through PROMIS at an academic cancer center and network site: implementation of a hybrid model. Presented at: Annual Meeting, American Society of Clinical Oncology.
- 9/2019 Generalova, O, **Roy, M**, Hall, ET, et al. Feasibility and Design of a Cloud Based Digital Platform in Patients with Advanced Cancer. Presented at: American Society of Clinical Oncology Quality Care Symposium; Phoenix, AZ.
- 3/2019 Generalova, O, Hall, ET, Velasquez B, **Roy, M**, Cunanan, K, McMillan, A, Ramchandran, KJ. Digital Symptom Tracking, Patient Engagement, and Quality of Life in Advanced Lung Cancer. Presented at: Thoracic Cancers Symposium, American Society for Radiation Oncology; San Diego, CA.
- 9/2018 **Roy, M**, Halbert, B, Abuhasira, R, Dechen, T, Li, S, Devlin, SM and Zerillo, JA. Symptom Management Pathways to Reduce ED Visits and Hospitalizations for Patients with Cancer. Presented at: American Society of Clinical Oncology Quality Care Symposium; Phoenix, AZ.
- 12/2017 **Roy, M**, Mantia, C, Uhlmann EJ, Puligandla, Weber G, Neuberg DS, and Zwicker J. Clinical Relevance of Intracranial Hemorrhage Volume in Primary and Metastatic Brain Tumors. Presented at: The American Society of Hematology, 59<sup>th</sup> Annual Meeting and Exposition; Atlanta, GA.
- 11/2017 **Roy, M**, Halbert, B, Chiu, DT, Graue R, Wright D, and Zerillo, JA. Identifying potentially preventable emergency department visits in patients with cancer. Presented at: Massachusetts Society of Clinical Oncology Annual Meeting; Dedham, MA.

# Exhibit B



Official Copy



STANFORD ADVANCED  
MEDICINE CENTER  
300 PASTEUR DRIVE  
MC:5500  
PALO ALTO CA 94305-2200

Hernandez-Valdez, Anthony Michael  
MRN: 36945558, DOB: 9/23/1998, Sex: M  
Visit date: 1/28/2022

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**Progress Notes by Roy, Mohana, MD at 1/28/2022 12:30 PM (continued)**

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500 Pasteur Dr

Stanford, CA 94305, for allowing me to participate in the care of your patients. If you have any questions or concerns, please don't hesitate to contact me directly.

The patient was seen with Dr. \*\*\*, attending physician, who agrees with the above assessment and plan.

Signed, 1/27/2022  
Jason Kao, PA-C  
Stanford Cancer Center  
Physician Assistant  
Thoracic Oncology  
Pager# 26098

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**Progress Notes by Roy, Mohana, MD at 1/28/2022 12:30 PM**

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Author: Roy, Mohana, MD  
Filed: 1/31/2022 9:48 AM  
Status: Signed

Service: Oncology  
Encounter Date: 1/28/2022  
Editor: Roy, Mohana, MD (Physician)

Author Type: Physician  
Note Type: Progress Notes



**Stanford Thoracic Oncology Clinic  
New Patient Consultation**

RE: Dr. Parminder Sidhu  
MRN: 83303958  
DOB: 9/23/1998

Dear Dr. Sidhu,

I had the pleasure of seeing your patient, Mr. Anthony Hernandez, in the Stanford Thoracic Oncology Clinic regarding his history of (suspected) mesothelioma. While you are well aware of his history, please allow me to review it for our records.

**History of present illness:**

Anthony Hernandez is a 23 Y old male who was recently diagnosed with epithelioid mesothelioma. His recent oncologic history is summarized as follows.

2020: Developed cough and shortness of breath. Had been admitted with several echocardiograms performed, which showed pericardial effusions. Has only been treated on colchicine and prednisone.

1/4/22: Developed worsening adenopathy and neck swelling and underwent a CT neck for left sided neck



STANFORD ADVANCED  
 MEDICINE CENTER  
 300 PASTEUR DRIVE  
 MC:5500  
 PALO ALTO CA 94305-2200

Hernandez-Valdez, Anthony Michael  
 MRN: 36945558, DOB: 9/23/1998, Sex: M  
 Visit date: 1/28/2022

## Progress Notes by Roy, Mohana, MD at 1/28/2022 12:30 PM (continued)

swelling. Imaging revealed abnormal shotty appearing lymph nodes along the left neck and left neck soft tissue spaces including the left jugulodigastric which is enlarged measuring 1.3 cm. Numerous posterior cervical lymph nodes and bilateral supraclavicular lymph nodes.

CT chest revealed worsening lobulated masslike pericardial effusion. Worsening multiple enlarged neck soft tissue lymph nodes and subcutaneous soft tissue edema extending through the chest wall to level of the trachea. Notable supraclavicular, mediastinal, and retroperitoneal lymphadenopathy. Small pleural effusion.

1/10/22: Underwent right paratracheal (R4) lymph node biopsy. Path revealed mesothelioma, epithelioid type.

I have discussed the risks, benefits, and limitations of receiving care virtually with the patient. The patient expresses understanding and is willing to move forward. he presents today with his supportive mother.

**He shares that he has had on and off symptoms of SOB and chest discomfort for ~2 years.** Had been in and out of the hospital for pericardial effusion, never was tapped, and previously treated with steroids + colchicine. He shares that since his hospital discharge, he has been feeling slightly better. Continues to feel short of breath with exertion, which brings up his coughing. Cough can be dry and sometimes productive with phlegm. He does feel nauseous at times with coughing fits. Takes zofran for this. Denies any hemoptysis. He recently underwent an EBUS of 4R which demonstrated mesothelioma. He denies any personal exposure to asbestos. His father works in construction and shares that he attended school in an older building in the past. Currently works in Home Depot. Since onset of symptoms, he had not experienced any fevers, chills, night sweats, unexplained weight loss, testicular pain, inguinal lymph nodes, of testicular masses. He does have chronic back pain, which he shared that this pre-dated his symptoms.

### Review of systems:

A comprehensive 14-point review of systems was performed, with pertinent positives as noted above; all other systems negative.

### Past medical history:

Anxiety  
 Appendicitis

### Past surgical history:

Appendectomy 2009

### Medications:

#### Outpatient Medications Prior to Visit

Medication	Sig	Dispense	Refill
• acetaminophen (Tylenol Extra Strength) 500 mg TABS	1 Tab Tab, PO, every 4 hours, PRN, as needed for fever, Qty: 24 Tab, Refills: 0, 05/15/21 20:00:00 PDT, Acute, Print Requisition		
• acyclovir (Zovirax) 400 mg tablet	acyclovir 400 mg tablet		



# Exhibit C



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STANFORD HOSPITAL 500P Hernandez-Valdez, Anthony Michael  
500 PASTEUR DR MRN: 36945558, DOB: 9/23/1998, Sex: M  
PALO ALTO CA 94305-2200 Adm: 2/12/2022

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**Consults by Rodriguez, Fatima, MD at 2/13/2022 7:43 PM (continued)**

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I saw and examined the patient and discussed management with the resident. I reviewed the resident's note and agree with the documented findings and plan of care, with the addition and/or exception of the items documented below:

**Impression and Plan:** Patient is not in clinical tamponade. Review of his echocardiogram shows a small to moderate loculated effusion. There is underlying constrictive physiology from mesothelioma with the pericardial involvement. No current indication for any cardiovascular interventions. Patient awaiting plan from oncology for mesothelioma treatment.

**Time in Counseling and Coordination**

*The following is only applicable if counseling or coordination time with patient and/or family (C) is >50% of total attending floor/unit time including face to face time with patient and/or family (V).*

Not Applicable

Fatima Rodriguez, MD

Electronically signed by Rodriguez, Fatima, MD at 2/13/2022 9:05 PM

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**H&P by Backhus, Leah Monique, MD at 2/14/2022 11:14 AM**

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Author: Backhus, Leah Monique, MD	Service: Thoracic Surgery	Author Type: Physician
Filed: 2/16/2022 12:31 AM	Date of Service: 2/14/2022 11:14 AM	Note Type: H&P
Status: Addendum	Editor: Backhus, Leah Monique, MD (Physician)	
Related Notes: Original Note by Anderson, Taylor, MD (Resident) filed at 2/15/2022 7:52 AM		

**Stanford Hospital and Clinics  
Thoracic Surgery Consult H&P**

<b>Service:</b> Treatment Team: Tt, Med Oncology - Mix Surge Team C	<b>Admit Date:</b> 2/12/2022
<b>Attending:</b> Cao, Michelle Thi, DO	<b>Today's Date:</b> 2/14/2022
<b>Referring provider:</b> Selfreferral	<b>Length of stay:</b> LOS: 2 days
<b>Patient's Name/MRN:</b> Anthony Michael Hernandez-Valdez, 36945558	<b>Room #:</b> E344/E344A

Reason for consult: pericardial epithelioid mesothelioma

**HPI:** Anthony Michael Hernandez-Valdez is a 23 Y male with a history of newly diagnosed pericardial epithelioid mesothelioma c/b malignant pericardial and pleural effusions and constrictive pericarditis (EF 49%).

Patient originally presented in 2020 with a persistent cough and pericardial resolution that failed to respond to multiple courses of colchicine and prednisone over the past 2

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## H&P by Backhus, Leah Monique, MD at 2/14/2022 11:14 AM (continued)

years.

1/4/2022: Presented with progressive cervical adenopathy and workup demonstrating pericardial mass, worsening pericardial effusion, and small pleural effusions.

1/10/22: Underwent right paratracheal (R4) lymph node biopsy. Path revealed mesothelioma, epithelioid type.

1/20-1/24 Admitted for dyspnea, found to have pulmonary embolism, started on apixaban.

1/24 Echo demonstrating constrictive-effusive pericarditis with EF 49%

1/28: Oncology outpatient visit, referred for thoracic evaluation.

2/6-2/9: Admitted with dyspnea and large bilateral pulmonary effusions, underwent bilateral thoracentesis (R 2/8, L 2/9) with removal of 1.5L fluid from each side.

2/8: PET scan showing extensive nodular hypermetabolic thickening of pericardium and Widespread mediastinal adenopathy extending into the cardiophrenic angle and retroperitoneum, and supraclavicular areas.

2/12: Readmitted with SOB, chest pressure, tachycardia to 200s. CTPE on 2/12 showing nodular pericardial thickening and negative for PE. Notable laboratory values: Wbc 7.5, Hgb 12, platelet 348, Cr 0.87, INR 1.4.

Patient remains persistently tachycardic and reports ongoing dyspnea especially with exertion, persistent food regurgitation that has improved since hospitalization, body aches, and nonproductive cough. Denies orthopnea, hemoptysis, unintentional weight loss.

### **Past Medical History:**

#### **Past Medical History:**

Diagnosis

Date

- Mesothelioma (CMS-HCC)
- Pericardial effusion
- Pleural effusion, malignant
- Pulmonary embolism (CMS-HCC)
- Appendicitis

### **Past Surgical History:**

Appendectomy (2009)

### **Allergies:**

#### **Allergies**

Allergen

Reactions

- Zofran [Ondansetron Hcl]

Nausea,  
Vomiting,  
Dizziness and

**Family History:** His family history is not on file.

### **Social History:**

Social EtOH

No drug use

Father in construction, younger sibling at home

### **Review of Systems**

Pertinent items are noted in HPI. A complete review of systems was otherwise negative.



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STANFORD HOSPITAL 500P Hernandez-Valdez, Anthony Michael  
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**H&P by Backhus, Leah Monique, MD at 2/14/2022 11:14 AM (continued)**

Headache

**Medications:**

Current Facility-Administered Medications:

- acetaminophen (Tylenol) tablet 650 mg, 650 mg, Oral, Q6H PRN, Cao, Michelle Thi, DO, 650 mg at 02/14/22 1807
- ALPRAZolam (Xanax) tablet 0.25 mg, 0.25 mg, Oral, TID PRN, Cao, Michelle Thi, DO, 0.25 mg at 02/14/22 1045
- benzonatate (Tessalon) capsule 100 mg, 100 mg, Oral, Q4H PRN, Cao, Michelle Thi, DO, 100 mg at 02/14/22 1016
- enoxaparin (Lovenox) syringe 120 mg, 120 mg, Subcutaneous, Q12H, Dobos, Katharine Marie, MD, 120 mg at 02/14/22 2116
- hydrOXYzine HCL (Atarax) tablet 25 mg, 25 mg, Oral, Q8H PRN, Cao, Michelle Thi, DO, 25 mg at 02/13/22 1504
- LR IV infusion, , Intravenous, Continuous, Cao, Michelle Thi, DO, Last Rate: 75 mL/hr at 02/15/22 0039, New Bag at 02/15/22 0039
- melatonin tablet 3 mg, 3 mg, Oral, QHS PRN, Cao, Michelle Thi, DO
- oxyCODONE (Roxicodone) tablet 5 mg, 5 mg, Oral, Q4H PRN, Cao, Michelle Thi, DO
- pantoprazole (Protonix) delayed release tablet 40 mg, 40 mg, Oral, QAM AC, Cao, Michelle Thi, DO, 40 mg at 02/15/22 0544
- prochlorperazine (Compazine) tablet 10 mg, 10 mg, Oral, Q6H PRN, Cao, Michelle Thi, DO

**Physical Exam**

**VITAL SIGNS:**

**Visit Vitals**

BP	116/87
Pulse	117
Temp	37.1 °C (98.7 °F) (Oral)
Resp	20
Ht	1.854 m (6' 1")
Wt	114 kg (251 lb 5.2 oz)
SpO2	96%
BMI	33.16 kg/m <sup>2</sup>

**GENERAL:** sitting in bed comfortably in NADH

**HEENT:** no palpable cervical or supraclavicular lymphadenopathy



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STANFORD HOSPITAL 500P Hernandez-Valdez, Anthony Michael  
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PALO ALTO CA 94305-2200 Adm: 2/12/2022

## H&P by Backhus, Leah Monique, MD at 2/14/2022 11:14 AM (continued)

**CHEST AND LUNGS:** normal work of breathing on RA, O2 sat >96%, bibasilar diminished lung sounds, no wheezes or crackles noted  
**CARDIOVASCULAR:** tachycardic, regular rhythm per monitor  
**EXTREMITIES:** moving spontaneously  
**NEURO:** Alert and oriented

### Labs:

<b>CBC:</b>				<b>Electrolytes:</b>				<b>UA:</b>
<b>Recent Labs</b>				<b>Recent Labs</b>				No results for input(s): UCOL, SPG, UGLU, UKET, UBLOOD, UPH, UPROT, NITRITE, LEUKEST, URBC, UWBC, UBACT, SQEP, MUCUS, UCMT in the last 72 hours.
	02/12/22 1423	02/13/22 0728	02/14/22 0551		02/12/22 2 1423	02/13/22 2 0728	02/14/22 2 0551	
WBC	8.2	8.8	7.6	NA	134*	133*	138	
HGB	12.8*	12.4*	12.0*	K	3.8	4.0	4.1	
HCT	41.1	40.2	39.7*	CL	100	101	104	
PLT	328	325	348	CO2	22	22	22	
<b>LFTs:</b>				BUN	10	11	9	
				CR	0.87	0.86	0.87	
				CA	8.5	8.4	8.3*	
				<b>Blood glucose:</b>				
<b>Recent Labs</b>				<b>Recent Labs</b>				
	02/12/22 1423				02/12/22 2 1423	02/13/22 2 0728	02/14/22 2 0551	
TBIL	0.9			GLU	96	98	88	
AST	19			No results for input(s): LIPASE, AMYLASE, LAC, LDH in the last 72 hours.				
ALT	20							
ALKP	154*							
ALB	3.6							
<b>Coags:</b>								
<b>Recent Labs</b>								
	02/12/22 1623							
PT	17.2*							
INR	1.4*							

### Imaging:

CT Chest Angiography w IV Contrast Pulmonary Embolism

Result Date: 2/12/2022

IMPRESSION: 1. No evidence of pulmonary embolism.. 2. History of mesothelioma. Again seen is nodular pericardial thickening and moderate effusion with extensive mediastinal and cardiophrenic lymphadenopathy. 3. Bilateral moderate pleural effusions with associated compressive atelectasis. Additional areas of groundglass opacities and nodular consolidations involving the left lower lobe are likely representing airspace opacities. There are no substantial differences between the preliminary results and the impressions in this final report. I have personally reviewed the images for this examination and agree with the report transcribed above. Signed"Final report"



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**Stanford**  
HEALTH CARE  
STANFORD MEDICINE

STANFORD HOSPITAL 500P Hernandez-Valdez, Anthony Michael  
500 PASTEUR DR MRN: 36945558, DOB: 9/23/1998, Sex: M  
PALO ALTO CA 94305-2200 Adm: 2/12/2022

**H&P by Backhus, Leah Monique, MD at 2/14/2022 11:14 AM (continued)**

XR Chest 1 View

Result Date: 2/12/2022

IMPRESSION: 1. Retrocardiac opacity may reflect atelectasis versus aspiration/infection. 2. Persistent moderate left pleural effusion There are no substantial differences between the preliminary results and the impressions in this final report. I have personally reviewed the images for this examination and agree with the report transcribed above. Signed"Final report"

**Assessment/Recommendation:**

Anthony Michael Hernandez-Valdez is a 23 Y male with a history of newly diagnosed pericardial epithelioid mesothelioma c/b malignant pericardial and pleural effusions and constrictive pericarditis.

Patient presents with symptomatic rapid reaccumulation of malignant pleural effusions s/p recent thoracentesis and would benefit from additional drainage, with indication for long-term pleurx catheter placement given likelihood of recurrence. Overall poor prognosis with advanced local disease, supraclavicular and retroperitoneal lymphadenopathy. Recommend additional discussion with medical oncology for initiation of chemotherapy as well as consult to cardiac surgery for consideration of pericardiectomy as means of surgical debulking given evidence of hemodynamically significant constrictive-effusive pericarditis. These measures are temporizing given advanced disease, recommend additional discussion with patient and family to determine goals and appropriate course of care.

**Recommendations:**

- **Obtain cardiac MRI for preoperative workup**
- **Pleurx catheter placement for long-term management of malignant effusions**
- **Consult to medical oncology**
- **Consult to cardiac surgery for pericardiectomy consideration**
- **Goals of care discussion with family and patient. Thoracic surgery to remain available for involvement in this discussion if needed.**

This patient was discussed with Dr. Backhus, attending surgeon, who agreed with the above assesment and plan.

Taylor Anderson, MD  
Thoracic Surgery, p12060  
11:20 AM 2/14/2022

**ATTENDING ATTESTATION:**

I personally saw and evaluated the patient, and participated in the management and treatment plan as documented in the above note. The patient was seen at bedside along with his mother. All imaging were reviewed personally. Overall, primary pericardial mesothelioma is an extremely rare condition with a poor



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**H&P by Backhus, Leah Monique, MD at 2/14/2022 11:14 AM (continued)**

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prognosis. Most often these are refractory to traditional chemotherapy regimens. Mainstay of therapy is surgical debulking primarily for palliation of effusions and relief of constrictive pericarditis. The latter is an extensive undertaking so goals of care must be clear. I emphasized this to him and his mother. He also has extensive adenopathy which underscores the advanced stage of his disease. Per my review, however and given his young age and functional status, surgery should be considered followed by adjuvant chemotherapy at the discretion of medical oncology. To that end, I have already discussed his case with Dr Boyd from Cardiac Surgery to provide an assessment of operability from his perspective. If he agrees, this can be done as a joint case. I can address his effusions, provide lymph node dissection for the mediastinal nodes accessible via median sternotomy approach as well as potentially address any visible pleural lesions. I can also place pleur-x catheters for longterm management of his pleural effusions. Will follow up with Cardiac Surgery and Medical Oncology to determine feasibility of this plan. I spent a total of > 60 min in direct patient evaluation and care coordination among providers for this encounter. He and his mother asked several insightful questions and they are agreeable with this tentative plan.

Electronically signed by Backhus, Leah Monique, MD at 2/16/2022 12:31 AM

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**H&P by Shieh, Tim Han, PA at 2/15/2022 12:30 AM**

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Author: Shieh, Tim Han, PA	Service: Cardiac Surgery	Author Type: Physician Assistant
Filed: 2/15/2022 1:21 AM	Date of Service: 2/15/2022 12:30 AM	Note Type: H&P
Status: Signed	Editor: Shieh, Tim Han, PA (Physician Assistant)	
Cosigner: Boyd, Jack H, MD at 2/24/2022 1:31 PM		

**Stanford Hospital and Clinics  
Cardiac Surgery History and Physical**

Date: 2/15/2022      Service: Cardiac Surgery      Attending: Jack H. Boyd, M.D.

**ALLERGIES:**

- sensitivity to ondansetron (nausea, headache)

**History of Present Illness:**

Anthony Hernandez-Valdez is a pleasant 23 year old male with a past medical history of appendicitis status post appendectomy circa 2009 and COVID+ 1/20, with a recent diagnosis of epithelioid mesothelioma, who presented to the hospital with a c/c of dyspnea and was found to have pulmonary edema and worsening

# Exhibit D



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STANFORD HOSPITAL 500P Hernandez-Valdez, Anthony Michael  
500 PASTEUR DR MRN: 36945558, DOB: 9/23/1998, Sex: M  
PALO ALTO CA 94305-2200 Adm: 2/12/2022

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**H&P by Shieh, Tim Han, PA at 2/15/2022 12:30 AM (continued)**

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**Recent Labs**

	02/14/22 0551
Sodium, Ser/Plas	138
Potassium, Ser/Plas	4.1

Diabetes :  
Hematologic :  
Nutrition : per dietitian:  
BMI from flowsheet: 33.2

Malignancy : Primary malignancy of lungs (site) Confirmed  
Functional Status :

Tim Shieh, PA-C  
Cardiothoracic Surgery

Electronically signed by Boyd, Jack H, MD at 2/24/2022 1:31 PM

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**Operative Report signed by Boyd, Jack H, MD at 3/8/2022 4:57 PM**

---

Author: Boyd, Jack H, MD	Service: Cardiac Surgery	Author Type: Physician
Filed: 3/8/2022 4:57 PM	Date of Service: 2/17/2022 6:00 PM	Note Type: Operative Report
Status: Signed	Editor: Boyd, Jack H, MD (Physician)	

DATE OF OPERATION: 02/17/2022

**PREOPERATIVE DIAGNOSES:**

1. Pericardial mesothelioma.
2. Bilateral pleural effusions.
3. Pericardial constriction.

**POSTOPERATIVE DIAGNOSES:**

1. Pericardial mesothelioma.
2. Bilateral pleural effusions.
3. Pericardial constriction.

**OPERATION PERFORMED:**

1. Pericardiectomy (33030).
2. Bilateral PleurX catheters performed by Dr. Backhus.
3. Resection of mediastinal mass performed by Dr. Backhus.



STANFORD HOSPITAL 500P Hernandez-Valdez, Anthony Michael  
500 PASTEUR DR MRN: 36945558, DOB: 9/23/1998, Sex: M  
PALO ALTO CA 94305-2200 Adm: 2/12/2022

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**Operative Report signed by Boyd, Jack H, MD at 3/8/2022 4:57 PM (continued)**

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SURGEON: Jack H Boyd, MD

SURGEON: Leah M Backhus, MD.

CO-SURGEON: Jack H Boyd, MD.

SURGERY RESIDENT: Irmina A Elliott, MD

ASSISTANT: Jessica C Warner, PA-C

**INTRAOPERATIVE FINDINGS:**

1. Large bilateral chylothoraces.
2. Diffuse tumor involvement of the pericardium with areas of invasion into the myocardium.

**INDICATION FOR SURGERY:** Anthony Hernandez is a 23-year-old male with the above diagnoses. He has been offered palliative pericardiectomy and mass excision as well as PleurX catheter placement. The risks, benefits, and alternatives were discussed. All questions were answered. Informed consent was obtained.

**DESCRIPTION OF PROCEDURE:** Please refer to Dr. Backhus' separate note for her portions of the procedure.

The patient was brought to the operating room, placed in the supine position on the operating table. Femoral lines were placed, and then general anesthesia was induced. The patient was intubated and the appropriate monitoring lines and catheters were placed. The patient was then prepped and draped in normal sterile fashion. A median sternotomy was performed. Both pleural spaces were opened widely and large quantities of chylous effusion were removed by suction approximately 5-6 L in total. We then began by excising all the mediastinal fat and then attempted to open the pericardium in several places before finding an area overlying the right ventricle. We then slowly removed after identifying the proper plane, removed as much pericardium as we could from around the right atrium over the right ventricle and out toward the left ventricular apex. There were areas of direct tumor involvement into the heart and these areas were spared. All in all from nearly right phrenic to the left phrenic with about 2 cm on either side from the level of the diaphragm up to the aorta the vast majority of the pericardium with tumor involved was resected. After completing the pericardiectomy and a thymectomy with other mediastinal fat excision by Dr. Backhus, it was determined this should complete the extent of our resection. During the surgery, the patient's CVP decreased from the high 20s to low 20s. The pulmonary pressures dropped nearly in half from a



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PALO ALTO CA 94305-2200 Adm: 2/12/2022

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**Operative Report signed by Boyd, Jack H, MD at 3/8/2022 4:57 PM (continued)**

---

systolic of 60 to a systolic in the low 30s and the cardiac output doubled. Drainage catheters were placed. Dr. Backhus and her team placed PleurX catheters and the chest wall was closed in the standard fashion. Needle, sponge, and instrument counts were correct. Pre and postoperative time-outs were performed. I was present and scrubbed for the procedure.

Jack H Boyd, MD

CC: Han Zhu, MD

Fatima Rodriguez, MD

Mohana Roy, MD

D: 02/18/2022 13:30:53 T: 02/18/2022 14:02:56 / MODL  
SJN: 947455498 DJN: 354233

Electronically signed by Boyd, Jack H, MD at 3/8/2022 4:57 PM

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**Operative Report by Backhus, Leah Monique, MD at 2/17/2022 10:00 PM**

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Author: Backhus, Leah Monique, MD	Service: Thoracic Surgery	Author Type: Physician
Filed: 2/20/2022 5:27 PM	Date of Service: 2/17/2022 10:00 PM	Note Type: Operative Report
Status: Addendum	Editor: Backhus, Leah Monique, MD (Physician)	
Related Notes: Original Note by Elliott, Irmina A, MD (Fellow) filed at 2/20/2022 12:34 PM		

DATE OF OPERATION: 02/17/2022

**PREOPERATIVE DIAGNOSES:**

1. Pericardial mesothelioma.
2. Bilateral pleural effusions.
3. Pericardial constriction.

**POSTOPERATIVE DIAGNOSES:**

1. Pericardial mesothelioma.
2. Bilateral pleural effusions, chylothoraces.
3. Pericardial constriction.

**OPERATION PERFORMED:**

1. Pericardiectomy (performed by Dr. Boyd)
2. Bilateral PleurX catheters

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STANFORD HOSPITAL 500P Hernandez-Valdez, Anthony Michael  
500 PASTEUR DR MRN: 36945558, DOB: 9/23/1998, Sex: M  
PALO ALTO CA 94305-2200 Adm: 2/12/2022

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**Operative Report by Backhus, Leah Monique, MD at 2/17/2022 10:00 PM (continued)**

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**3. Resection of mediastinal mass and thymectomy**

SURGEON: Leah M Backhus, MD.

CO-SURGEON: Jack H Boyd, MD.

SURGERY RESIDENT: Irmina A Elliott, MD

ASSISTANT: Jessica C Warner, PA-C

**INTRAOPERATIVE FINDINGS:**

1. Large bilateral chylothoraces.
2. Diffuse tumor involvement of the pericardium with areas of invasion into the myocardium.

INDICATION FOR SURGERY: Anthony Hernandez is a 23-year-old male with pericardial mesothelioma. He has been offered palliative pericardiectomy for tumor debulking with the hope of relieving his shortness of breath as well as PleurX catheter placement. The risks, benefits, and alternatives were discussed. All questions were answered. Informed consent was obtained.

DESCRIPTION OF PROCEDURE: Please refer to Dr. Boyd's separate note for his portions of the procedure. The patient was brought to the operating room, placed in the supine position on the operating table. Before induction of general anesthesia, an ultrasound-guided sheath was placed in the left common femoral artery and right common femoral vein. General anesthesia was induced and the patient was then prepped and draped in the usual sterile fashion.

As indicated in Dr. Boyd's note, a median sternotomy was made. The pleural spaces were opened and what appeared grossly to be bilateral chylous effusions were evacuated totally 4-5 Liters of fluid. Partial pericardiectomy was performed. We then proceeded with thymectomy, dissecting the pericardial fat and thymus free from the pericardial surface from the level of the diaphragm to above the innominate vein, taking care not to injure the phrenic nerves. The draining thymic veins were ligated with clips and divided. Of note, the thymus and pericardial fat were nodular and thickened, containing areas of tumor. We then placed bilateral tunneled PleurX catheters. Incisions were made at appropriate exit sites, and the catheters positioned using the tunneler with the cuff just within the exit incision. We also placed bilateral straight chest tubes and a mediastinal tube.

The chest wall was closed in the standard fashion. Needle, sponge, and instrument counts were correct. Pre and postoperative time-outs were performed.

**Surgical Teaching Physician Attestation**

I was present, scrubbed and directly participated in the entire surgical procedure detailed above.

Leah Monique Backhus, MD  
Thoracic Surgery

Electronically signed by Backhus, Leah Monique, MD at 2/20/2022 5:27 PM

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**Documentation Clarification by Novack, Michael Raedy, MD at 2/18/2022 10:29 AM**

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# Exhibit E



Name: Anthony Michael Hernandez-Valdez | DOB: 9/23/1998 | MRN: 36945558 | PCP: Christine Emma Viney, PA

## Fusion-Stamp Ngs Panel, Non-Blood - Details

### Study Result

#### Narrative

Molecular diagnostic test results should be interpreted in the context of standard clinical, laboratory and pathological findings. Molecular genetic test results impart a probabilistic risk of disease. In order to derive the most meaningful benefit from this testing, it is recommended that the results and subsequent options from these complex tests be discussed with patients by a trained medical/genetics professional.

False negative results may be due to sampling error or errors in sample handling, as well as clonal/signal density below the level of detection. Genotyping errors can result from trace contamination of PCR reactions and from rare genetic variants that interfere with analysis, including deletions or polymorphisms in primer binding sites which prevent allele amplification.

This test was developed and its performance characteristics determined by Stanford Clinical Laboratories. It has not been cleared or approved by the U.S. Food and Drug Administration.

The FDA has determined that such clearance or approval is not necessary. This test is used for clinical purposes. It should not be regarded as investigational or for research. This laboratory is certified under the Clinical Laboratory Improvement Amendments of 1988 ('CLIA') as qualified to perform high complexity clinical laboratory testing.

Component	Your Value	Standard Range
Clinical Indication	Your Value Fusion gene detection in solid tumors for diagnosis, prognosis, and treatment selection	
Surgical Pathology Case #	Your Value SHS-22-03759 A2 (22MS-0133 1B)	
% Tumor	Your Value 30 %	Standard Range %
Result, Non-blood	Your Value Negative: No fusions detected	
Method	Your Value The Stanford Actionable Mutation Panel for Fusions (Fusion-STAMP) is a targeted next generation sequencing method that detects potentially clinically actionable gene fusion events in cancer. The targeted sequencing approach and integrated bioinformatics workflow is optimized for sequencing of formalin fixed paraffin embedded tissue specimens. The workflow includes isolation of total RNA molecules, followed by efficient preparation of sequencing libraries and a target enrichment approach to capture mRNA transcript regions of interest for sequencing. The enrichment is done using custom designed libraries of capture oligonucleotides that target a specific set of expressed genomic regions. This panel fully targets the transcript isoforms of 43 genes which were selected based on their known impact as actionable targets of existing and emerging anti-cancer therapies, their prognostic features, and/or their utility as diagnostic cancer biomarkers. Pooled libraries are sequenced on an Illumina sequencing instrument. Genes tested by NGS: ALK, ATF1, BCOR, BRAF, CAMTA1, CCNB3, CIC, COL1A1, DDIT3, EGFR, ERG, ETV6, EWSR1, FGFR1, FGFR2, FGFR3, FLI1, FOXO1, FUS, HMGA2, MET, MYB, NAB2, NCOA2, NRG1, NTRK1, NTRK2, NTRK3, PAX3, PAX7, PDGFB, PHF1, PPARG, RAF1, RET, ROS1, SS18, SSX1, STAT6, TFE3, USP6, WT1, YWHAE	
Interpreted By	Your Value J. Zehnder, MD	

### General Information

Ordered by Mohana Roy  
Collected on 03/15/2022 11:39 AM from Other (Tissue)  
Resulted on 04/04/2022 2:57 PM  
Result Status: Final result



# Exhibit F

Official Copy



CANCER CENTER SOUTH  
BAY  
2589 SAMARITAN DR  
SAN JOSE CA 95124-3908

Hernandez-Valdez, Anthony Michael  
MRN: 36945558, DOB: 9/23/1998, Sex: M  
Visit date: 3/14/2022

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**Progress Notes by Roy, Mohana, MD at 3/14/2022 1:00 PM (continued)**

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-Using Lorazepam 1 mg as needed

**#Cardiac Management**-in discussing the case with Dr. Boyd and Dr. Backus and reviewing the operative reports, he has still significant mesothelial tumor involvement around his heart and some into the myocardium. Recommend continuing metoprolol succinate 75 mg daily.

-Repeat ECHO

-off colchicine

**#Thrombosis** - non occlusive thrombus bilateral internal jugular and left brachiocephalic veins

**#Right subsegmental PE:**

He is still on rivaroxaban 15 mg daily with the initial loading. And will transition to 20 mg daily.

-can consider anti-XA level if worried about DOAC inefficacy

**# Acid reflux**

**# Nausea**

- Continue compazine as needed

-Continue Pepcid twice a day

RTC scheduled 3/18/22

As usual, I encouraged the patient to contact us should he develop any new symptoms or have any questions or concerns

Mohana Roy, MD

Clinical Assistant Professor-Oncology

Stanford Cancer Center Palo Alto and South Bay

Electronically signed by Roy, Mohana, MD at 3/15/2022 9:23 AM

---

**Progress Notes by Roy, Mohana, MD at 3/18/2022 9:00 AM**

---

Author: Roy, Mohana, MD

Service: Oncology

Author Type: Physician

Filed: 3/29/2022 8:13 AM

Encounter Date: 3/18/2022

Note Type: Progress Notes

Status: Addendum

Editor: Roy, Mohana, MD (Physician)

Related Notes: Original Note by Roy, Mohana, MD (Physician) filed at 3/19/2022 11:12 AM



**Stanford Thoracic Oncology Clinic**  
**Return Patient Visit**  
**Palo Alto**





STANFORD ADVANCED  
MEDICINE CENTER  
300 PASTEUR DRIVE  
MC:5500  
PALO ALTO CA 94305-2200

Hernandez-Valdez, Anthony Michael  
MRN: 36945558, DOB: 9/23/1998, Sex: M  
Visit date: 3/18/2022

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**Progress Notes by Roy, Mohana, MD at 3/18/2022 9:00 AM (continued)**

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RE:

Dr. Leah Backhus  
Dr. Han Zhu  
Dr. Josh Fronk

MRN: 36945558  
DOB: 9/23/1998

**History of present illness:**

Anthony Michael Hernandez-Valdez is a 23 Y old male who was recently diagnosed with epithelioid mesothelioma, suspect pericardial primary, here for followup after hospitalization and pericardiectomy

His oncologic history is summarized as follows:

2020: Developed cough and shortness of breath. Had been admitted with several echocardiograms performed, which showed pericardial effusions. Has only been treated on colchicine and prednisone.

1/4/22: Developed worsening adenopathy and neck swelling and underwent a CT neck for left sided neck swelling. Imaging revealed abnormal shotty appearing lymph nodes along the left neck and left neck soft tissue spaces including the left jugulodigastric which is enlarged measuring 1.3 cm. Numerous posterior cervical lymph nodes and bilateral supraclavicular lymph nodes.

CT chest revealed worsening lobulated masslike pericardial effusion. Worsening multiple enlarged neck soft tissue lymph nodes and subcutaneous soft tissue edema extending through the chest wall to level of the trachea. Notable supraclavicular, mediastinal, and retroperitoneal lymphadenopathy. Small pleural effusion.

1/10/22: Underwent right paratracheal (R4) lymph node biopsy. Path revealed mesothelioma, epithelioid type.

1/28/2022: **Initial Thoracic Oncology Visit (Roy)**

1/31/22: AFP, LDH, beta HCG, uric acid levels are wnl.

2/3/22: Scrotal ultrasound is negative.

2/6/22- SHC admission for shortness of breath-initially relieved by 2 thoracentesis with 1-1/2 L taken out on each side. Pleural fluid confirms malignant cells, morphologically similar to mesothelioma.

2/12-/2/22/22-SHC readmission with worsening respiratory status, concern for right-sided heart failure and will remain tachycardic.

He underwent **Pericardiectomy (performed by local Dr. Boyd) Bilateral PleurX catheters, Resection of mediastinal mass and thymectomy on 2/17/22**

OPERATIVE FINDINGS:

1. Large bilateral chylothoraces.
2. Diffuse tumor involvement of the pericardium with areas of invasion into the myocardium

3/18/22 CT Chest- Similar to 2/26/2022, **multiple pericardial masses nearly encasing the heart, thoracic lymphadenopathy, retrocrural lymphadenopathy**, and adjacent right upper lobe and right middle lobe





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## Progress Notes by Roy, Mohana, MD at 3/18/2022 9:00 AM (continued)

interlobular septal thickening, concerning for residual/recurrent malignancy. Interlobular septal thickening may represent lymphangitic carcinomatosis versus lymphatic obstruction. Interval increase in extensive filling defects throughout the venous system, including left internal jugular, left brachiocephalic, right internal jugular, right brachiocephalic, and right vertebral veins. No evidence of extension of the thrombus into the superior vena cava

### Interval History

He is feeling okay overall  
He had SOB and feeling unwell after taking dexamethasone 4 mg yesterday  
He continues to drain 1 L on each side with the Pleurx catheter every day- slight decrease seen on right side  
No otherwise SOB, palpitations, chest pain  
Still having issues in having adequate drainage supplies - pictures of drainage with white milky fluid

### Review of systems:

A comprehensive 14-point review of systems was performed, with pertinent positives as noted above; all other systems negative.

### Past medical history:

Anxiety  
Appendicitis

### Past surgical history:

#### Past Surgical History:

Procedure	Laterality	Date
• BILATERAL PROCEDURE; SECONDARY MODIFIER <i>Performed by Backhus, Leah Monique, MD at STANFORD HOSPITAL 500P INTERVENTIONAL PLATFORM</i>	N/A	2/17/2022
• CHEST DRAINAGE CATHETER INSERTION <i>Performed by Backhus, Leah Monique, MD at STANFORD HOSPITAL 500P INTERVENTIONAL PLATFORM</i>	Bilateral	2/17/2022
• MEDIASTINAL LYMPHADENECTOMY, BILATERAL TUNNELED PLEURAL CATHETERS (PLEUR-X), POSSIBLE PLEURECTOMY, RADICAL PERICARDIECTOMY, THYMECTOMY WITH CPB STANDBY <i>Performed by Boyd, Jack H, MD at STANFORD HOSPITAL 500P INTERVENTIONAL PLATFORM</i>	N/A	2/17/2022
• THYMECTOMY; MEDIAN STERNOTOMY APPROACH <i>Performed by Backhus, Leah Monique, MD at STANFORD HOSPITAL 500P INTERVENTIONAL PLATFORM</i>	N/A	2/17/2022

Appendectomy 2009

### Medications:

#### Outpatient Medications Prior to Visit

Medication	Sig	Dispense	Refill
• acetaminophen (TylenoL) 325 mg TABS	take 2 Tablets by mouth 2 times a day as needed		
• Cholecalciferol (Vitamin D3)	take 1 Capsule by		





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### Progress Notes by Roy, Mohana, MD at 3/18/2022 9:00 AM (continued)

(Vitamin D3) 2,000 unit CAPS	mouth every day		
• Cyanocobalamin 1,000 mcg SUBL	place 1 Tablet under the tongue and let dissolve every day		
• dexAMETHasone (Decadron) 4 mg tablet	take 1 Tablet (4 mg total) by mouth as directed Take once daily on the day before, the day of and the day after pemetrexed (ALIMTA).	30 Tablet	2
• famotidine (Pepcid) 20 mg tablet	take 1 Tablet (20 mg total) by mouth 2 times a day	60 Tablet	0
• LORazepam (Ativan) 1 mg tablet	take 1 Tablet (1 mg total) by mouth every 8 hours as needed	30 Tablet	0
• metoprolol succinate (Toprol XL) 50 mg extended release tablet	take 2 Tablets (100 mg total) by mouth daily	90 Tablet	3
• octreotide (SandoSTATIN) 100 mcg/mL injection	inject 1 mL (100 mcg total) subcutaneous (under the skin) every 8 hours	90 Vial	0
• ondansetron 8 mg tablet	take 1 Tablet (8 mg total) by mouth every 8 hours as needed For nausea and vomiting	30 Tablet	5
• prochlorperazine (Compazine) 10 mg tablet	take 1 Tablet (10 mg total) by mouth every 8 hours as needed For nausea or vomiting	30 Tablet	5
• prochlorperazine (Compazine) 10 mg tablet	take 1 Tablet (10 mg total) by mouth every 6 hours as needed for Nausea/Vomiting	30 Tablet	3
• rivaroxaban (Xarelto) 20 mg TABS	take 20 mg by mouth daily (Start after finishing 21 days of Xarelto 15 mg twice daily)		

No facility-administered medications prior to visit.

### Allergies:



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**Progress Notes by Roy, Mohana, MD at 3/18/2022 9:00 AM (continued)**

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NKDA

**Social history:**

Father works in construction and may have exposures, however only started in the past couple of years  
Previously attended school in an old building, no clear asbestos exposure  
Mother reports using large amounts of baby powder (Johnson and Johnson) in his childhood  
No other exposures to hair salon products, chemicals in labs  
Works at Home Depot  
EtOH socially  
No recreational drug use

**Family history:**

Father had ?bone cancer  
Maternal aunt had early age breast cancer (diagnosed at age 33) and AML (diagnosed 35)

BRCA mutation:

- Mother, maternal grandmother, maternal aunts x 2

**Physical Exam:****Filed Vitals:**

03/18/22 0958

BP: 118/66  
Pulse: 115  
SpO2: 98%  
Weight: 102.9 kg (226 lb 13.7 oz)

General: Well-appearing and speaking in full sentences

CV: tachycardic, regular rhythm

Lungs: decreased at bases bilaterally

Abdomen: healed sternotomy scar, inspected both his drain sites which are overall clean and intact, the one on the left does have slightly increased granulation tissue

Extremities- without edema

**Labs and studies:**

Reviewed in epic, white count 11.3, hemoglobin is stable at 12.9, sodium is getting lower at 129 and we will have to monitor that

**+chylous fluid on pleural effusion**

**Imaging:**

As in HPI

Most recent review in tumor board of CTA 2/26/22

**Pathology:****2/25/22 Pericardiectomy Specimen Review**

A. THYMUS PERICARDIAL FAT  
B. PERICARDIUM AND TUMOR  
DIAGNOSIS (MICROSCOPIC):





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**Progress Notes by Roy, Mohana, MD at 3/18/2022 9:00 AM (continued)**

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**A. THYMUS AND PERICARDIAL FAT, EXCISION**

-- **PERICARDIAL TISSUE WITH MALIGNANT MESOTHELIOMA, EPITHELIOID TYPE**

-- METASTATIC MALIGNANT MESOTHELIOMA COMPLETELY REPLACING ONE LYMPH NODE (1/1)

-- **EXTENSIVE VENOUS AND LYMPHATIC INVOLVEMENT BY MALIGNANT MESOTHELIOMA**

-- INVOLUTED THYMIC TISSUE

**B. HEART, PERICARDIUM AND TUMOR, EXCISION**

-- MALIGNANT MESOTHELIOMA, EPITHELIOID TYPE  
LIBERT/C. WANG/BERRY

COMMENT: We note the patient's recent diagnosis of metastatic malignant mesothelioma, epithelioid type (SHS-22-03759). The tumor present in the current resection specimen is morphologically similar.

**Stanford Review**

**DIAGNOSIS:**

LYMPH NODES. RIGHT LOWER PARATRACHEAL/4R, EXCISIONAL BIOPSY (1/10/22; 22MS-133)

-- HISTOLOGIC AND IMMUNOPHENOTYPIC FINDINGS SUPPORTING **METASTATIC MALIGNANT MESOTHELIOMA, EPITHELIOID TYPE.**

COMMENT: I have reviewed the H&E stained slides and accompanying immunostains and agree with Dr. Silveira as listed above. In light of the unusual diagnosis in this age group I performed a battery of immunostains in our lab along with additional H&E stained slides. The neoplastic cells within the lymph node show the following immunophenotypic profile: **WT1 positive, P40 negative, CK5/6 positive, D2-40 positive, BAP1 retained, BerEP4 negative, calretinin positive, Claudin4 negative.** This supports metastatic malignant mesothelioma, epithelioid type. **The findings are consistent with pericardial origin.**

**EBUS of 4R 1/10/22:**

Immunostain for cytokeratin AE1/AE3, cytokeratin 7, and cytokeratin 5/6 are diffusely positive.

Both calretinin and WT1 display nuclear staining of tumor.

Ki-67 highlights around 25% of nuclei. Thrombomodulin stains tumor weakly (the external control stains no better). MOC31, BER-EP4, PAX8, thyroglobulin, CD5, p40, OCT-4, and CD117 are all negative. CD3/CD20 immunostain cocktail displays background aggregates of B cells, with surrounding T cells. Immunostain cocktail displays no nuclear uptake with TTF-1 and no cytoplasmic staining with napsin A.

Flow cytometry on tissue from part 2 was performed at NeoGenomics. Viability is poor (<50%) and most cells appear non-hematopoietic. Residual lymphocytes (11% of total) are primarily T cells (68%), with CD4/CD8 ratio of 1.6, and no loss of antigens. Please see appended report for additional details.

**Molecular:**





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**Progress Notes by Roy, Mohana, MD at 3/18/2022 9:00 AM (continued)**

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**2/4/22 Guardant peripheral- negative**

**STAMP 1/26/22**

**SUMMARY OF FINDINGS**

Estimated tumor mutation burden: 3.0 mut/Mb<sup>†</sup>

The following variants are not known to be clinically relevant at this time:

ATRT1180A (Unknown significance)

NTRK3 G642R (Unknown significance)

TERTE441del (Unknown significance)

Please see the following pages for variant annotations.

**Fusion STAMP pending**

**Assessment & Plan:**

Anthony Michael Hernandez-Valdez is a 23 Y old male with newly diagnosed pericardial mesothelioma, status post pericardiectomy and Pleurx placement on 2/17/2022, here for follow-up and initiation of first cycle of chemotherapy.

**#Epithelioid mesothelioma, pericardial-metastatic**

We had previously discussed that this appears to be a primary mesothelioma of the pericardium which is exceedingly rare, even within the rare diagnosis of mesothelioma in general. In addition him being so young and age makes this additionally difficult.

**-Today- starting C1D1 Carboplatin AUC 5, pemetrexed 375 mg/m<sup>2</sup> to be given for 4-6 cycles**

-Emend given today but unfortunately he had a reaction to this in the infusion center- will avoid for future use

-Ativan 1 mg p.o. given baseline anxiety

-We will also avoid dexamethasone going forward unless needed given his reported reaction to it

-He will have cancer genetics consultation soon and as well as palliative care

**#Chylous Pleural Effusions-** discussed with Dr. Backhus-

-Continuing to drain Pleurx 1 L each side

-Plan to start octreotide 100 mics 3 times daily-he is concerned about giving himself the shot so we will circle back next week on timing of starting this pending how he is doing with chemotherapy

**#Anxiety-baseline with coping of new diagnosis**

Contacted Ms. Pam Simon in AYA group- for helping support him.

-Has upcoming initial consultation and meeting with Dr. Fronk in palliative care

-Using Lorazepam 1 mg as needed

**#Cardiac Management-**in discussing the case with Dr. Boyd and Dr. Backus and reviewing the operative reports, he has still significant mesothelial tumor involvement around his heart and some into the myocardium. Recommend continuing metoprolol succinate 75 mg daily.

-Repeat ECHO

-off colchicine

**#Thrombosis** - non occlusive thrombus bilateral internal jugular and left brachiocephalic veins-extension seen on recent CT, likely also due to impaired venous drainage from tumor burden

**#Right subsegmental PE:**

He is still on rivaroxaban 15 mg daily with the initial loading- and now on 20 mg daily.

-can consider anti-XA level if worried about DOAC inefficacy





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**Progress Notes by Roy, Mohana, MD at 3/18/2022 9:00 AM (continued)**

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**# Acid reflux****# Nausea**

- Continue compazine as needed
- Continue Pepcid twice a day

RTC scheduled for chemo cycles, will also request 1 week video visit check-in

As usual, I encouraged the patient to contact us should he develop any new symptoms or have any questions or concerns

Mohana Roy, MD  
Clinical Assistant Professor-Oncology  
Stanford Cancer Center Palo Alto and South Bay

Electronically signed by Roy, Mohana, MD at 3/29/2022 8:13 AM

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**Progress Notes by Thai, Quan B, NP at 3/18/2022 5:33 PM**

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Author: Thai, Quan B, NP	Service: Oncology	Author Type: Nurse Practitioner
Filed: 3/18/2022 6:05 PM	Date of Service: 3/18/2022 5:33 PM	Note Type: Progress Notes
Status: Addendum	Editor: Thai, Quan B, NP (Nurse Practitioner)	
Related Notes: Original Note by Thai, Quan B, NP (Nurse Practitioner) filed at 3/18/2022 6:02 PM		

**Stanford Hospital and Clinics  
ITA Sick Call Progress Note**

Today's Date: 3/18/2022  
Attending Provider: Mohana Roy, MD  
Patient's Name: Anthony Michael Hernandez-Valdez  
Medical Record Number: 36945558

**Impression:**

Anthony Michael Hernandez-Valdez is a 23 Y patient who has newly diagnosed epithelioid mesothelioma, suspect pericardial primary s/p pericardiectomy who presents for C1 carboplatin/pemetrexed.

**Reason for Sick Call APP assessment:** Infusion reaction to fosaprepitant which was stopped and disconnected by infusion RN.

**ROS:**

- Pt developed throat tightening briefly, shortness of breath.
- Throat tightening resolved with stopping the infusion. Shortness of breath persisted.
- No flushing/rash/pruritis/rigors/fevers/CP

# Exhibit G



## Anthony Michael Hernandez-Valdez

Patient Health Summary, generated on May 19, 2022



### Patient Demographics - Male; born Sep. 23, 1998

Patient Address	Communication	Language	Race / Ethnicity	Marital Status
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2695 Agnes Way (Home) Merced, CA 95340-3133	[REDACTED] [REDACTED] [REDACTED]	English (Preferred)	Other Race / Hispanic or Latino	Single
--	--	---------------------	------------------------------------	--------

Former (Jan. 18, 2022 -  
Jan. 17, 2022):

2695 Agness Way  
(Home)  
Merced, CA 95340

Former (Mar. 07, 2017 -  
Jan. 17, 2022):

2695 Agnes Way (Home)  
MERCED, CA 95340



### Note from Stanford Health Care and University Healthcare Alliance

This document contains information that was shared with Anthony Michael Hernandez-Valdez. It may not contain the entire record from Stanford Health Care and University Healthcare Alliance.



### Allergies

**Fosaprepitant** (Shortness of Breath)

**Oxycodone** (Itching, pruritis)

**Ondansetron Hcl** (Shortness of Breath, Nausea, Vomiting, Dizziness, Headache)

Case 2:12-cv-00025-MBK Doc 74-1 Filed 04/10/22 Entered 04/10/22 18:36:02 Desc Exhibit 22 to Sate Roy Declaration Page 34 of 69

Active Problems - documented as of this encounter (statuses as of 05/19/2022)	
Problem	Noted Date
Admission for antineoplastic chemotherapy	04/10/2022
Nausea and vomiting, unspecified vomiting type	04/10/2022
Nausea and vomiting	03/23/2022
Chylous effusion	03/15/2022
Pericardial effusion	02/12/2022
Dyspnea	02/06/2022
Pleural effusion	02/06/2022
Mesothelioma	01/30/2022

Resolved Problems - documented as of this encounter (statuses as of 05/19/2022)		
Problem	Noted Date	Resolved Date
Shortness of breath	01/21/2022	01/23/2022

Immunizations - documented as of this encounter		
Name	Administration Dates	Next Due
Flu vaccine (IIV4), preservative-free	01/24/2022	
Moderna COVID-19 Vaccine	05/21/2021, 04/23/2021	

Social History - documented as of this encounter				
Tobacco Use	Types	Packs/Day	Years Used	Date
Never Smoker				
Smokeless Tobacco: Never Used				
Alcohol Use	Standard Drinks/Week			
Not Currently	0 (1 standard drink = 0.6 oz pure alcohol)			
Sex Assigned at Birth	Date Recorded			
Not on file				
Job Start Date	Occupation	Industry		
Not on file	Not on file	Not on file		

Last Filed Vital Signs - documented in this encounter			
Vital Sign	Reading	Time Taken	Comments
Blood Pressure	101/51	04/29/2022 9:46 AM PDT	
Pulse	115	04/29/2022 9:46 AM PDT	
Temperature	36.9 °C (98.4 °F)	04/29/2022 9:46 AM PDT	
Respiratory Rate	16	04/29/2022 9:46 AM PDT	
Oxygen Saturation	99%	04/29/2022 9:46 AM PDT	
Inhaled Oxygen Concentration	-	-	
Weight	94.3 kg (207 lb 14.3 oz)	04/29/2022 9:46 AM PDT	
Height	179.5 cm (5' 10.67")	04/29/2022 9:46 AM PDT	
Body Mass Index	29.27	04/29/2022 9:46 AM PDT	

Ordered Prescriptions - documented in this encounter				
Prescription	Sig	Dispensed	Start Date	End Date
octreotide (SandoSTATIN) 100 mcg/mL injection	inject 1 mL (100 mcg total) subcutaneous (under the skin) every 12 hours	90 Vial	05/02/2022	05/02/2023

Progress Notes - documented in this encounter
Mohana Roy, MD - 04/29/2022 9:00 AM PDT
Formatting of this note is different from the original.
Images from the original note were not included.



RE:

Dr. Leah Backhus

Dr. Josh Fronk

MRN: 36945558

DOB: 9/23/1998

History of present illness:

Anthony Michael Hernandez-Valdez is a 23 Y old male who was recently diagnosed with epithelioid mesothelioma, suspect pericardial primary, on carboplatin and pemetrexed, here for followup

His oncologic history is summarized as follows:

2020: Developed cough and shortness of breath. Had been admitted with several echocardiograms performed, which showed pericardial effusions. Has only been treated on colchicine and prednisone.

1/4/22: Developed worsening adenopathy and neck swelling and underwent a CT neck for left sided neck swelling. Imaging revealed abnormal shotty appearing lymph nodes along the left neck and left neck soft tissue spaces including the left jugulodigastric which is enlarged measuring 1.3 cm. Numerous posterior cervical lymph nodes and bilateral supraclavicular lymph nodes.

CT chest revealed worsening lobulated masslike pericardial effusion. Worsening multiple enlarged neck soft tissue lymph nodes and subcutaneous soft tissue edema extending through the chest wall to level of the trachea. Notable supraclavicular, mediastinal, and retroperitoneal lymphadenopathy. Small pleural effusion.

1/10/22: Underwent right paratracheal (R4) lymph node biopsy. Path revealed mesothelioma, epithelioid type.

1/28/2022: Initial Thoracic Oncology Visit (Roy)

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2/3/22: Scrotal ultrasound is negative.

2/6/22- SHC admission for shortness of breath-initially relieved by 2 thoracentesis with 1-1/2 L taken out on each side. Pleural fluid confirms malignant cells, morphologically similar to mesothelioma.

2/12/-2/22/22-SHC readmission with worsening respiratory status, concern for right-sided heart failure and will remain tachycardic.

He underwent Pericardiectomy (performed by local Dr. Boyd) Bilateral PleurX catheters, Resection of mediastinal mass and thymectomy on 2/17/22

OPERATIVE FINDINGS:

1. Large bilateral chylothoraces.
2. Diffuse tumor involvement of the pericardium with areas of invasion into the myocardium

3/18/22 CT Chest- Similar to 2/26/2022, multiple pericardial masses nearly encasing the heart, thoracic lymphadenopathy, retrocrural lymphadenopathy, and adjacent right upper lobe and right middle lobe interlobular septal thickening, concerning for residual/recurrent malignancy. Interlobular septal thickening may represent lymphangitic carcinomatosis versus lymphatic obstruction. Interval increase in extensive filling defects throughout the venous system, including left internal jugular, left brachiocephalic, right internal jugular, right brachiocephalic, and right vertebral veins. No evidence of extension of the thrombus into the superior vena cava

3/18/22 - C1 Carboplatin AUC 5/Pemetrexed 375 mg/m2

Significant nausea, vomiting, fatigue- had also allergic rxn to Emend

Added low dose haldol for nausea/vomiting, compazine and reglan has not helped in past

Two admissions for symptom control

4/9/22- C2 carboplatin AUC 4, Pemetrexed 375 mg/m2 (scheduled admission for chemo given symptom burden)

Interval History

He is feeling okay- here for consideration of cycle 3 of chemotherapy

Mild sores have resolved and he has finished a course of nystatin swish and spit, and not using lidocaine as much. He is having more complete meals and the nausea seems to be better controlled

He is however quite easily tired and does get dyspneic on exertion

Drainage on the Pleurx catheters have decreased significantly, has not scheduled CT chest yet

Review of systems:



Anxiety

Appendicitis

Past surgical history:

Past Surgical History:

Procedure Laterality Date

- BILATERAL PROCEDURE; SECONDARY MODIFIER N/A 2/17/2022

Performed by Backhus, Leah Monique, MD at STANFORD HOSPITAL 500P INTERVENTIONAL PLATFORM

- CHEST DRAINAGE CATHETER INSERTION Bilateral 2/17/2022

Performed by Backhus, Leah Monique, MD at STANFORD HOSPITAL 500P INTERVENTIONAL PLATFORM

- MEDIASTINAL LYMPHADENECTOMY, BILATERAL TUNNELED PLEURAL CATHETERS (PLEUR-X), POSSIBLE PLEURECTOMY, RADICAL PERICARDIECTOMY, THYMECTOMY WITH CPB STANDBY N/A 2/17/2022

Performed by Boyd, Jack H, MD at STANFORD HOSPITAL 500P INTERVENTIONAL PLATFORM

- THYMECTOMY; MEDIAN STERNOTOMY APPROACH N/A 2/17/2022

Performed by Backhus, Leah Monique, MD at STANFORD HOSPITAL 500P INTERVENTIONAL PLATFORM

Appendectomy 2009

Medications:

Outpatient Medications Prior to Visit

Medication Sig Dispense Refill

- acetaminophen (Tylenol 8 Hour) 650 mg TbSR take 1 Tablet by mouth daily as needed
- albuterol 90 mcg/actuation HFA inhaler 1 Puff by Inhalation route daily as needed
- cetirizine (Zyrtec) 10 mg tablet take 1 Tablet (10 mg total) by mouth daily as needed for Allergies 30 Tablet 0
- Cholecalciferol (Vitamin D3) (Vitamin D3) 2,000 unit CAPS take 1 Capsule by mouth every day
- famotidine (Pepcid) 20 mg tablet take 1 Tablet (20 mg total) by mouth 2 times a day 180 Tablet 1
- fluticasone propionate (Flonase) 50 mcg/actuation SpSn spray 2 Sprays by Nasal route daily 16 g 0
- folic acid 1 mg tablet take 1 mg by mouth daily
- gabapentin (Neurontin) 300 mg capsule take 1 Capsule (300 mg total) by mouth daily in the evening 30 Capsule 1
- HYDROMORPHONE (Dilaudid) 2 mg tablet take 1 Tablet (2 mg total) by mouth every 4 hours as needed (pain) 30 Tablet 0
- LORAZEPAM (Ativan) 1 mg tablet take 1.5 Tablets (1.5 mg total) by mouth every 6 hours as needed 30 Tablet 0
- LORAZEPAM (Ativan) 1 mg tablet take 1 Tablet (1 mg total) by mouth every 8 hours as needed 30 Tablet 0
- metoclopramide (Reglan) 10 mg tablet take 1 Tablet (10 mg total) by mouth 4 times a day as needed 30 Tablet 0
- metoclopramide (Reglan) 10 mg tablet take 10 mg by mouth 4 times a day as needed
- metoprolol succinate (Toprol XL) 25 mg extended release tablet take 3 Tablets (75 mg total) by mouth daily 90 Tablet 0
- multivitamin tablet take 1 Tablet by mouth daily 30 Tablet 0
- octreotide (SandoSTATIN) 100 mcg/mL injection inject 1 mL (100 mcg total) subcutaneous (under the skin) every 8 hours 90 Vial 0
- other drug Liocaine viscous solution 2%+Maalox+Childrens Benadryl 12.5mg/5ml (Ratio:1:1:1) -swish and spit 15 ml daily as needed
- prochlorperazine (Compazine) 10 mg tablet take 1 Tablet (10 mg total) by mouth every 6 hours as needed for Nausea/Vomiting 30 Tablet 0
- rivaroxaban (Xarelto) 20 mg tablet take 1 Tablet (20 mg total) by mouth daily with dinner After completion of loading course (15 mg BID) 90 Tablet 0
- Syringe with Needle (Disp) 1 mL 25 x 5/8" Syrg 1 Syringe by Misc.(Non-Drug; Combo Route) route every 8 hours . Use to inject octreotide (Patient taking differently: 1 Syringe by Misc.(Non-Drug; Combo Route) route every 8 hours . Use to inject octreotide) 100 Syringe 0

No facility-administered medications prior to visit.

Allergies:

NKDA

Social history: obtained at prior visits

Father works in construction and may have exposures, however only started in the past couple of years

Previously attended school in an old building, no clear asbestos exposure

Mother reports using large amounts of baby powder (Johnson and Johnson) in his childhood

No other exposures to hair salon products, chemicals in labs

Works at Home Depot

EtOH socially

No recreational drug use

Family history:

Father had ?bone cancer

Maternal aunt had early age breast cancer (diagnosed at age 33) and AML (diagnosed 35)

BRCA mutation:



Filed Vitals:

04/29/22 0946

BP: 101/51

Pulse: 115

Resp: 16

Temp: 36.9 °C (98.4 °F)

TempSrc: Oral

SpO2: 99%

Weight: 94.3 kg (207 lb 14.3 oz)

Height: 1.795 m (5' 10.67")

ECOG 2

General: Appears fatigued, comes in wheelchair

CV: mildly tachycardic, S1 and S2

Lungs: Decreased breath sounds at bases but aerating otherwise symmetrically

Mouth: without active sores or ulcers

Abdomen: Soft and nontender, Pleurx sites are clean and intact

LE: without edema

Skin: more prominent xerosis and possible ashy dermatitis?

Media pictures attached

#### Labs and studies:

His labs are notable for a cytopenia with white count of 2.0, neutrophil count of 1000, with a hemoglobin critically low at 6.9 and platelet count normal at 191

He is hyponatremic at 128, renal functions normal

#### Imaging

As in HPI

Most recent review in tumor board of CTA 2/26/22

#### Pathology:

2/25/22 Pericardiectomy Specimen Review

A. THYMUS PERICARDIAL FAT

B. PERICARDIUM AND TUMOR

DIAGNOSIS (MICROSCOPIC):

A. THYMUS AND PERICARDIAL FAT, EXCISION

-- PERICARDIAL TISSUE WITH MALIGNANT MESOTHELIOMA, EPITHELIOID TYPE

-- METASTATIC MALIGNANT MESOTHELIOMA COMPLETELY REPLACING ONE LYMPH NODE (1/1)

-- EXTENSIVE VENOUS AND LYMPHATIC INVOLVEMENT BY MALIGNANT MESOTHELIOMA

-- INVOLUTED THYMIC TISSUE

B. HEART, PERICARDIUM AND TUMOR, EXCISION

-- MALIGNANT MESOTHELIOMA, EPITHELIOID TYPE

LIBERT/C. WANG/BERRY

COMMENT: We note the patient's recent diagnosis of metastatic malignant mesothelioma, epithelioid type (SHS-22-03759). The tumor present in the current resection specimen is morphologically similar.

#### Stanford Review

DIAGNOSIS:

LYMPH NODES. RIGHT LOWER PARATRACHEAL/4R, EXCISIONAL BIOPSY (1/10/22; 22MS-133)

-- HISTOLOGIC AND IMMUNOPHENOTYPIC FINDINGS SUPPORTING METASTATIC MALIGNANT MESOTHELIOMA, EPITHELIOID TYPE.

COMMENT: I have reviewed the H&E stained slides and accompanying immunostains and agree with Dr. Silveira as listed above. In light of the unusual diagnosis in this age group I performed a battery of immunostains in our lab along with additional H&E stained slides.

The neoplastic cells within the lymph node show the following immunophenotypic profile: WT1 positive, P40 negative, CK5/6 positive, D2-40 positive, BAP1 retained, BerEP4 negative, calretinin positive, Claudin4 negative. This supports metastatic

Molecular:

2/4/22 Guardant peripheral- negative

STAMP 1/26/22

Fusion STAMP 3/15/22- Negative: No fusions detected

Assessment & Plan:

Anthony Michael Hernandez-Valdez is a 23 Y old male with newly diagnosed pericardial mesothelioma, status post pericardiectomy and Pleurx placement on 2/17/2022, here for follow-up and 2 cycles of chemotherapy.

#Epithelioid mesothelioma, pericardial-metastatic

We had previously discussed that this appears to be a primary mesothelioma of the pericardium which is exceedingly rare, even within the rare diagnosis of mesothelioma in general. In addition him being so young and age makes this additionally difficult.

Holding chemotherapy today given acute anemia, no evidence of bleeding other than some nosebleeds, no rectal bleeding

Transfuse 1 unit PRBC today

Lab check at Quest next week to ensure response

- Will remind to schedule CT Chest given decrease in drainage

- Holding off on octreotide given decrease in drainage

#Mouth Sores- improving - suspect chemotherapy related- reviewed using viscous lidocaine, discussed using bicarb + water, also adding nystatin swish given concern for candida as well

#Dry Skin, Linear dermatitis- possible chemo related, will e-consult dermatology for input

#Natusea- metoclopramide q tab every 6 hours, currently not using ondansetron, compazine, and haldol

- Have messaged Dr. Fronk's team to reconnect

#Chylous Pleural Effusions- discussed with Dr. Backhus-

-Continuing to drain Pleurx 1 L each side but given decreased drainage- holding off on starting octreotide 100 mics 3 times daily

### #Anxiety-baseline with coping of new diagnosis

Contacted Ms. Pam Simon in AYA group again- for helping support him.

-Rx lorazepam

-Dr. Fronk followup

#Cardiac Management-in discussing the case with Dr. Boyd and Dr. Backus and reviewing the operative reports, he has still significant mesothelial tumor involvement around his heart and some into the myocardium. Recommend continuing metoprolol succinate 75 mg daily.

#Thrombosis - non occlusive thrombus bilateral internal jugular and left brachiocephalic veins-extension seen on recent CT, likely also due to impaired venous drainage from tumor burden

#Right subsegmental PE:

He is continuing on rivaroxaban daily

#Epistaxis- platelets normal, has dry skin and nares- recommended trying to moisturize nares

# Acid reflux

## # Nausea

- Continue compazine as needed

-Continue Pepcid twice a day- rx given today

## #DME- Wheelchair

The patient has a mobility limitation that significantly impairs their ability to participate in one or more mobility-related activities of daily living (MRADLs) such as toileting, feeding, dressing, grooming, and bathing in customary locations in the home.

The patient's mobility limitation cannot be sufficiently resolved by the use of an appropriately fitted cane or walker.

The patient's home provides adequate access between rooms, maneuvering space, and surfaces for use of the manual wheelchair that is provided.

Use of a manual wheelchair will significantly improve the patient's ability to participate in MRADLs and the patient will use it on a regular basis at home



The patient has not expressed an unwillingness to use the manual wheelchair that is provided in the home  
Case 23112825-MBK Doc 7467-4 Filed 04/10/22 Entered 04/10/22 08:56:02 Desc  
Exhibit A to Mohana Roy Declaration Page 19 of 69  
Physician's certification: I, Mohana Roy, MD, have performed a face to face encounter on 4/29/22. My clinical findings indicate that the durable medical equipment (DME) is necessary. The primary reason for the face to face encounter is related to the primary reason that the patient requires durable medical equipment.

RTC scheduled for chemo cycles, repeat quest labs in 1 week (CBC, chem) given cytopenias and hyponatremia  
Schedule CT chest

As usual, I encouraged the patient to contact us should he develop any new symptoms or have any questions or concerns

Mohana Roy, MD  
Clinical Assistant Professor-Oncology  
Stanford Cancer Center Palo Alto and South Bay

Electronically signed by Mohana Roy, MD at 04/30/2022 8:09 PM PDT

## Plan of Treatment - documented as of this encounter

### Upcoming Encounters

Date	Type	Specialty	Care Team
05/26/2022	Telemedicine	Oncology	<b>Joshua Cade Fronk</b> 300 Pasteur Dr Rm HC005 MC 5277 Stanford, CA 94305 650-724-0385 (Work) 650-497-6853 (Fax)
06/06/2022	Office Visit	Oncology	<b>Leah Monique Backhus</b> 300 Pasteur Dr CVRC 205 MC 5406 Stanford, CA 94305 650-721-6400 (Work) 650-724-6259 (Fax)
06/07/2022	Telemedicine	Nutrition	<b>Thi N</b> 650-529-5947 (Work)
08/08/2022	Telemedicine	Oncology	<b>James Matthew Ford</b> 900 Blake Wilbur Dr 3rd Fl MC 5844 Stanford, CA 94305 650-498-6000 (Work) 650-725-2441 (Fax)
08/17/2022	Office Visit	Cardiology	<b>Han Zhu</b> 870 Quarry Rd Rm CV2C83 Stanford, CA 94305 650-736-1319 (Work) 650-725-1599 (Fax)

Health Maintenance	Due Date	Last Done	Comments
Human Papilloma Virus (HPV) Vaccine (1 - Male 2-dose series)	<b>09/23/2009</b>		
Meningococcal (MCV) Vaccine	Aged Out	05/03/2010	No longer eligible based on patient's age to complete this topic
Flu Vaccine	Completed	01/24/2022, 11/10/2021, 01/12/2018, Additional history exists	
Pneumococcal Vaccine	Aged Out		No longer eligible based on patient's age to complete this topic

# Exhibit H



## Anthony Michael Hernandez-Valdez

Patient Health Summary, generated on May 19, 2022



### Patient Demographics - Male; born Sep. 23, 1998

Patient Address	Communication	Language	Race / Ethnicity	Marital Status
-----------------	---------------	----------	------------------	----------------

2695 Agnes Way (Home) Merced, CA 95340-3133	[REDACTED] [REDACTED] [REDACTED]	English (Preferred)	Other Race / Hispanic or Latino	Single
--	--	---------------------	------------------------------------	--------

Former (Jan. 18, 2022 -  
Jan. 17, 2022):

2695 Agness Way  
(Home)  
Merced, CA 95340

Former (Mar. 07, 2017 -  
Jan. 17, 2022):

2695 Agnes Way (Home)  
MERCED, CA 95340



### Note from Stanford Health Care and University Healthcare Alliance

This document contains information that was shared with Anthony Michael Hernandez-Valdez. It may not contain the entire record from Stanford Health Care and University Healthcare Alliance.



### Allergies

**Fosaprepitant** (Shortness of Breath)

**Oxycodone** (Itching, pruritis)

**Ondansetron Hcl** (Shortness of Breath, Nausea, Vomiting, Dizziness, Headache)

### Patient Demographics - Male; born Sep. 23, 1998

Patient Address	Communication	Language	Race / Ethnicity	Marital Status
2695 Agnes Way (Home) Merced, CA 95340-3133	209-446-7294 (Mobile) 209-446-7294 (Home) emoryhernandez50@gmail.com	English (Preferred)	Other Race / Hispanic or Latino	Single
Former (Jan. 18, 2022 - Jan. 17, 2022): 2695 Agness Way (Home) Merced, CA 95340				
Former (Mar. 07, 2017 - Jan. 17, 2022): 2695 Agnes Way (Home) MERCED, CA 95340				

### Note from Stanford Health Care and University Healthcare Alliance

This document contains information that was shared with Anthony Michael Hernandez-Valdez. It may not contain the entire record from Stanford Health Care and University Healthcare Alliance.

### Reason for Visit

#### Follow Up (Routine) - Authorized

Specialty		Diagnoses / Procedures	Referred By Contact		Referred To Contact	
Oncology		Diagnoses	Mohana Roy		Mohana Roy	
		Mesothelioma, unspecified	2589 Samaritan Dr		2589 Samaritan Dr	
		Pericardial effusion	San Jose, CA 95124		San Jose, CA 95124	
		(noninflammatory)	Phone: (408)426-4900		Phone: (408)426-4900	
			Fax: 669-233-2482		Fax: 669-233-2482	
Referral ID	Status	Reason	Start Date	Expiration Date	Visits Requested	Visits Authorized
15192665	Authorized		3/1/2022	2/28/2023	12	12

### Encounter Details

Date	Type	Department	Care Team
05/06/2022	Telemedicine	Thoracic Oncology 875 Blake Wilbur Drive Palo Alto, CA 94305 650-498-6000	<b>Mohana Roy</b> 2589 Samaritan Dr San Jose, CA 95124 408-426-4900 (Work) 669-233-2482 (Fax)

### Allergies - documented as of this encounter (statuses as of 05/19/2022)

Active Allergy	Reactions	Severity	Noted Date	Comments
Fosaprepitant	Shortness of Breath		03/18/2022	Throat tightness
Oxycodone	Itching, pruritis		02/26/2022	
Ondansetron Hcl	Shortness of Breath, Nausea, Vomiting, Dizziness, Headache		02/04/2022	Chest tightness



Admission for antineoplastic chemotherapy	04/10/2022
Nausea and vomiting, unspecified vomiting type	04/10/2022
Nausea and vomiting	03/23/2022
Chylous effusion	03/15/2022
Pericardial effusion	02/12/2022
Dyspnea	02/06/2022
Pleural effusion	02/06/2022
Mesothelioma	01/30/2022

Problem	Noted Date	Resolved Date
Shortness of breath	01/21/2022	01/23/2022

Name	Administration Dates	Next Due
Flu vaccine (IIV4), preservative-free	01/24/2022	
Moderna COVID-19 Vaccine	05/21/2021, 04/23/2021	

Tobacco Use	Types	Packs/Day	Years Used	Date
Never Smoker				
Smokeless Tobacco: Never Used				
Alcohol Use	Standard Drinks/Week			
Not Currently	0 (1 standard drink = 0.6 oz pure alcohol)			
Sex Assigned at Birth	Date Recorded			
Not on file				
Job Start Date	Occupation	Industry		
Not on file	Not on file	Not on file		

Not on file

Prescription	Sig	Dispensed	Start Date	End Date
LORazepam (Ativan) 1 mg tablet	take 1.5 Tablets (1.5 mg total) by mouth every 6 hours as needed	30 Tablet	05/06/2022	11/02/2022
pantoprazole (Protonix) 40 mg delayed release tablet	take 1 Tablet (40 mg total) by mouth daily	60 Tablet	05/06/2022	05/06/2023
famotidine (Pepcid) 40 mg tablet	take 1 Tablet (40 mg total) by mouth daily	60 Tablet	05/06/2022	05/17/2022

Telemedicine: I have discussed the risks, benefits, and limitations of receiving care virtually with the patient. The patient expresses understanding and is willing to move forward.

MRN: 36945558  
DOB: 9/23/1998

History of present illness:

Anthony Michael Hernandez-Valdez is a 23 Y old male who was recently diagnosed with epithelioid mesothelioma, suspect pericardial primary, on carboplatin and pemetrexed, here for followup

His oncologic history is summarized as follows:

2020: Developed cough and shortness of breath. Had been admitted with several echocardiograms performed, which showed pericardial effusions. Has only been treated on colchicine and prednisone.

1/4/22: Developed worsening adenopathy and neck swelling and underwent a CT neck for left sided neck swelling. Imaging revealed abnormal shotty appearing lymph nodes along the left neck and left neck soft tissue spaces including the left jugulodigastric which is enlarged measuring 1.3 cm. Numerous posterior cervical lymph nodes and bilateral supraclavicular lymph nodes.

CT chest revealed worsening lobulated masslike pericardial effusion. Worsening multiple enlarged neck soft tissue lymph nodes and subcutaneous soft tissue edema extending through the chest wall to level of the trachea. Notable supraclavicular, mediastinal, and retroperitoneal lymphadenopathy. Small pleural effusion.

1/10/22: Underwent right paratracheal (R4) lymph node biopsy. Path revealed mesothelioma, epithelioid type.

1/28/2022: Initial Thoracic Oncology Visit (Roy)

1/31/22: AFP, LDH, beta HCG, uric acid levels are wnl.

2/3/22: Scrotal ultrasound is negative.

2/6/22- SHC admission for shortness of breath-initially relieved by 2 thoracentesis with 1-1/2 L taken out on each side. Pleural fluid confirms malignant cells, morphologically similar to mesothelioma.

2/12-/2/22/22-SHC readmission with worsening respiratory status, concern for right-sided heart failure and will remain tachycardic.

He underwent Pericardiectomy (performed by local Dr. Boyd) Bilateral PleurX catheters, Resection of mediastinal mass and thymectomy on 2/17/22

OPERATIVE FINDINGS:

1. Large bilateral chylothoraces.
2. Diffuse tumor involvement of the pericardium with areas of invasion into the myocardium

3/18/22 CT Chest- Similar to 2/26/2022, multiple pericardial masses nearly encasing the heart, thoracic lymphadenopathy, retrocrural lymphadenopathy, and adjacent right upper lobe and right middle lobe interlobular septal thickening, concerning for residual/recurrent malignancy. Interlobular septal thickening may represent lymphangitic carcinomatosis versus lymphatic obstruction. Interval increase in extensive filling defects throughout the venous system, including left internal jugular, left brachiocephalic, right internal jugular, right brachiocephalic, and right vertebral veins. No evidence of extension of the thrombus into the superior vena cava

3/18/22 - C1 Carboplatin AUC 5/Pemetrexed 375 mg/m2

Significant nausea, vomiting, fatigue- had also allergic rxn to Emend

Added low dose haldol for nausea/vomiting, compazine and reglan has not helped in past

Two admissions for symptom control

4/9/22- C2 carboplatin AUC 4, Pemetrexed 375 mg/m2 (scheduled admission for chemo given symptom burden)

4/29/22- C3 held given fatigue, cytopenia and anemia, 1 unit PRBC given

5/5/22- CT chest- Interval increased diffuse nodular interlobular septal thickening, right greater than left lung, as well as new and increasing pulmonary nodules, concerning for progression of disease.. Extensive thoracic lymphadenopathy and multiple pericardial masses nearly encasing the heart, overall stable compared to prior exam with the exception of a few lymph nodes which are slightly decreased in size.

Interval History

He is feeling okay-here for video visit with his mother.

Eating okay-although still continues to be nauseous, unpredictable if occurs with certain foods, using only Compazine as needed

He denies any current constipation

Mouth sores and pain have resolved



Review of systems:

A comprehensive 14-point review of systems was performed, with pertinent positives as noted above; all other systems negative.

Past medical history:

Anxiety

Appendicitis

Past surgical history:

Past Surgical History:

Procedure Laterality Date

- BILATERAL PROCEDURE; SECONDARY MODIFIER N/A 2/17/2022

Performed by Backhus, Leah Monique, MD at STANFORD HOSPITAL 500P INTERVENTIONAL PLATFORM

- CHEST DRAINAGE CATHETER INSERTION Bilateral 2/17/2022

Performed by Backhus, Leah Monique, MD at STANFORD HOSPITAL 500P INTERVENTIONAL PLATFORM

- MEDIASTINAL LYMPHADENECTOMY, BILATERAL TUNNELED PLEURAL CATHETERS (PLEUR-X), POSSIBLE PLEURECTOMY, RADICAL PERICARDIECTOMY, THYMECTOMY WITH CPB STANDBY N/A 2/17/2022

Performed by Boyd, Jack H, MD at STANFORD HOSPITAL 500P INTERVENTIONAL PLATFORM

- THYMECTOMY; MEDIAN STERNOTOMY APPROACH N/A 2/17/2022

Performed by Backhus, Leah Monique, MD at STANFORD HOSPITAL 500P INTERVENTIONAL PLATFORM

Appendectomy 2009

Medications:

Outpatient Medications Prior to Visit

Medication Sig Dispense Refill

- acetaminophen (Tylenol 8 Hour) 650 mg TbSR take 1 Tablet by mouth daily as needed

- albuterol 90 mcg/actuation HFA inhaler 1 Puff by Inhalation route daily as needed

- cetirizine (Zyrtec) 10 mg tablet take 1 Tablet (10 mg total) by mouth daily as needed for Allergies 30 Tablet 0

- Cholecalciferol (Vitamin D3) (Vitamin D3) 2,000 unit CAPS take 1 Capsule by mouth every day

- famotidine (Pepcid) 20 mg tablet take 1 Tablet (20 mg total) by mouth 2 times a day 180 Tablet 1

- folic acid 1 mg tablet take 1 mg by mouth daily

- gabapentin (Neurontin) 300 mg capsule take 1 Capsule (300 mg total) by mouth daily in the evening 30 Capsule 1

- HYDROMORPHONE (Dilaudid) 2 mg tablet take 1 Tablet (2 mg total) by mouth every 4 hours as needed (pain) 30 Tablet 0

- LORazepam (Ativan) 1 mg tablet take 1.5 Tablets (1.5 mg total) by mouth every 6 hours as needed 30 Tablet 0

- LORazepam (Ativan) 1 mg tablet take 1 Tablet (1 mg total) by mouth every 8 hours as needed 30 Tablet 0

- metoclopramide (Reglan) 10 mg tablet take 1 Tablet (10 mg total) by mouth 4 times a day as needed 30 Tablet 0

- metoclopramide (Reglan) 10 mg tablet take 10 mg by mouth 4 times a day as needed

- metoprolol succinate (Toprol XL) 25 mg extended release tablet take 3 Tablets (75 mg total) by mouth daily 90 Tablet 0

- multivitamin tablet take 1 Tablet by mouth daily 30 Tablet 0

- octreotide (SandoSTATIN) 100 mcg/mL injection inject 1 mL (100 mcg total) subcutaneous (under the skin) every 12 hours 90 Vial 0

- other drug Liocaine viscous solution 2%+Maalox+Childrens Benadryl 12.5mg/5ml (Ratio:1:1:1) -swish and spit 15 ml daily as needed

- prochlorperazine (Compazine) 10 mg tablet take 1 Tablet (10 mg total) by mouth every 6 hours as needed for Nausea/Vomiting 30 Tablet 0

- rivaroxaban (Xarelto) 20 mg tablet take 1 Tablet (20 mg total) by mouth daily with dinner After completion of loading course (15 mg BID) 90 Tablet 0

- Syringe with Needle (Disp) 1 mL 25 x 5/8" Syrg 1 Syringe by Misc.(Non-Drug; Combo Route) route every 8 hours . Use to inject octreotide (Patient taking differently: 1 Syringe by Misc.(Non-Drug; Combo Route) route every 8 hours . Use to inject octreotide) 100 Syringe 0

No facility-administered medications prior to visit.

Allergies:

NKDA

Social history: obtained at prior visits

Father works in construction and may have exposures, however only started in the past couple of years

Previously attended school in an old building, no clear asbestos exposure

Mother reports using large amounts of baby powder (Johnson and Johnson) in his childhood

No other exposures to hair salon products, chemicals in labs

Works at Home Depot

EtOH socially

No recreational drug use

Family history:

BRCA mutation:

- Mother, maternal grandmother, maternal aunts x 2

Physical Exam:

Lying down, fatigued, answering questions, + flat affect

Limited video exam

Labs and studies:

None recent- since transfusion

Imaging

As in HPI

Most recent review in tumor board of CTA 2/26/22

Pathology:

2/25/22 Pericardiectomy Specimen Review

A. THYMUS PERICARDIAL FAT

B. PERICARDIUM AND TUMOR

DIAGNOSIS (MICROSCOPIC):

A. THYMUS AND PERICARDIAL FAT, EXCISION

-- PERICARDIAL TISSUE WITH MALIGNANT MESOTHELIOMA, EPITHELIOID TYPE

-- METASTATIC MALIGNANT MESOTHELIOMA COMPLETELY REPLACING ONE LYMPH NODE (1/1)

-- EXTENSIVE VENOUS AND LYMPHATIC INVOLVEMENT BY MALIGNANT MESOTHELIOMA

-- INVOLUTED THYMIC TISSUE

B. HEART, PERICARDIUM AND TUMOR, EXCISION

-- MALIGNANT MESOTHELIOMA, EPITHELIOID TYPE

LIBERT/C. WANG/BERRY

COMMENT: We note the patient's recent diagnosis of metastatic malignant mesothelioma, epithelioid type (SHS-22-03759). The tumor present in the current resection specimen is morphologically similar.

Stanford Review

DIAGNOSIS:

LYMPH NODES. RIGHT LOWER PARATRACHEAL/4R, EXCISIONAL BIOPSY (1/10/22; 22MS-133)

-- HISTOLOGIC AND IMMUNOPHENOTYPIC FINDINGS SUPPORTING METASTATIC MALIGNANT MESOTHELIOMA, EPITHELIOID TYPE.

COMMENT: I have reviewed the H&E stained slides and accompanying immunostains and agree with Dr. Silveira as listed above. In light of the unusual diagnosis in this age group I performed a battery of immunostains in our lab along with additional H&E stained slides. The neoplastic cells within the lymph node show the following immunophenotypic profile: WT1 positive, P40 negative, CK5/6 positive, D2-40 positive, BAP1 retained, BerEP4 negative, calretinin positive, Claudin4 negative. This supports metastatic malignant mesothelioma, epithelioid type. The findings are consistent with pericardial origin.

EBUS of 4R 1/10/22:

Molecular:

2/4/22 Guardant peripheral- negative

STAMP 1/26/22

Fusion STAMP 3/15/22- Negative: No fusions detected

Assessment & Plan:

Anthony Michael Hernandez-Valdez is a 23 Y old male with newly diagnosed pericardial mesothelioma, status post



pericardiectomy and Pleurx placement on 2/17/2022, here for follow-up and 2 cycles of chemotherapy.

Case 2:11-cv-00235-MBK Doc 74-4 Filed 04/10/22 Entered 04/10/22 08:56:02 Desc

#Epithelioid mesothelioma Exhibit 5 Exhibit 12 to St. Roy Declaration Page 45 of 69

We had previously discussed that this appears to be a primary mesothelioma of the pericardium which is exceedingly rare, even within the rare diagnosis of mesothelioma in general. In addition him being so young and age makes this additionally difficult.

We will continue to hold chemotherapy given recent CT chest which unfortunately shows progression of disease.

-will plan to change treatment to ipilimumab/nivolumab

-send patient info- reschedule for next week

-Palliative care connection with Dr. Fronk

-Octreotide Rx sent, will message Dr. Backus and her team regarding neck steps and if drain removal would be considered on the right side

#Mouth Sores- improved- suspect chemotherapy related- reviewed using viscous lidocaine, s/ p nystatin

#Dry Skin, Linear dermatitis- possible chemo related, pending dermatology visit. I think this will be important and also is anticipating starting immunotherapy.

#Nausea- multiple medications have been tried including ondansetron, Haldol, metoclopramide, Ativan.

-Currently only using Compazine, suggested to use it at meals so every 8 hours approximately or 3 times a day.

-Appreciate Dr. Fronk's input

#Chylous Pleural Effusions- drainage decreased on right , pending input from Dr. Backhus

#Anxiety-baseline with coping of new diagnosis

Contacted Ms. Pam Simon in AYA group again

-Rx lorazepam- sent

-SW following

#Cardiac Management-in discussing the case with Dr. Boyd and Dr. Backus and reviewing the operative reports, he has still significant mesothelial tumor involvement around his heart and some into the myocardium. Recommend continuing metoprolol succinate 75 mg daily.

#Thrombosis - non occlusive thrombus bilateral internal jugular and left brachiocephalic veins-extension seen on recent CT, likely also due to impaired venous drainage from tumor burden

#Right subsegmental PE:

He is continuing on rivaroxaban daily

#Epistaxis- platelets normal, has dry skin and nares- recommended trying to moisturize nares

# Acid reflux

# Nausea

-increasing regimen-if contributing to nausea as well. Adding PPI- pantoprazole 40 mg and then increasing pepcid to 40

RTC scheduled for chemo cycles, repeat quest labs early next week (CBC, chem) and schedule Ipi/Nivo- first available

As usual, I encouraged the patient to contact us should he develop any new symptoms or have any questions or concerns

Mohana Roy, MD

Clinical Assistant Professor-Oncology

Stanford Cancer Center Palo Alto and South Bay

Electronically signed by Mohana Roy, MD at 05/07/2022 8:55 PM PDT

# Exhibit I





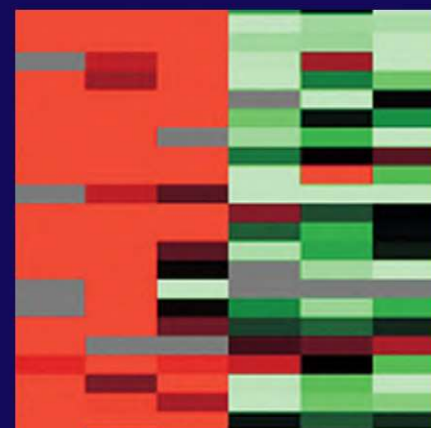
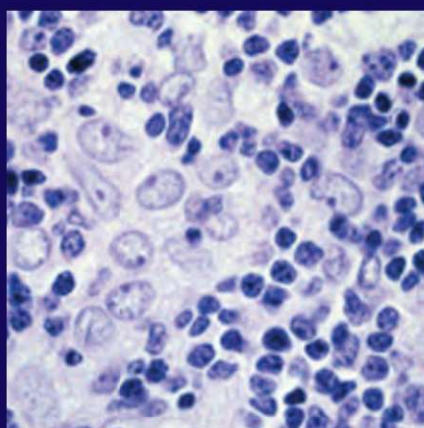
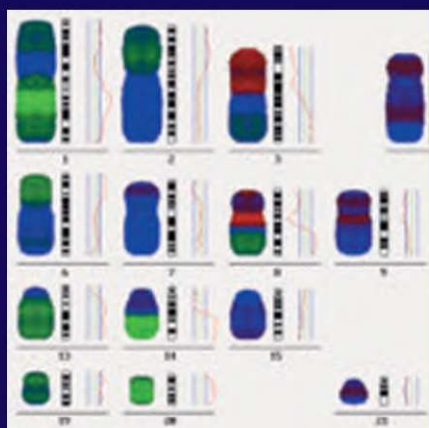
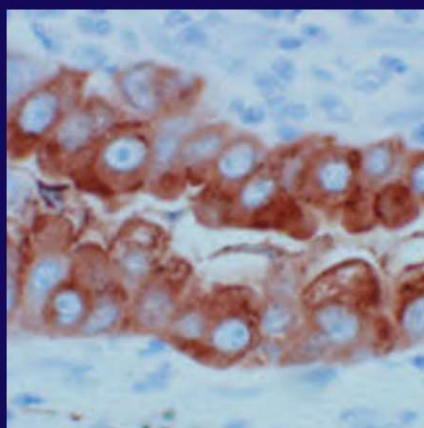
# World Health Organization Classification of Tumours



## Pathology & Genetics

### Tumours of the Lung, Pleura, Thymus and Heart

Edited by William D. Travis, Elizabeth Brambilla,  
H. Konrad Müller-Hermelink and Curtis C. Harris



# World Health Organization Classification of Tumours



International Agency for Research on Cancer (IARC)

## **Pathology and Genetics of Tumours of the Lung, Pleura, Thymus and Heart**

Edited by

William D. Travis

Elisabeth Brambilla

H. Konrad Müller-Hermelink

Curtis C. Harris

IARC*Press*

Lyon, 2004



# Pericardial tumours

A. Burke  
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## Solitary fibrous tumour

### Definition

An uncommon, spindle-cell, fibroblastic tumour which often shows a prominent haemangiopericytoma-like vascular pattern.

### ICD-O code

Solitary fibrous tumour 8815/1

### Synonyms

Benign mesothelioma, fibrous mesothelioma, submesothelial fibroma

### Localization

The most common locations, outside the pleura, include the head and neck, especially orbit, soft tissue, especially abdomen, extremities, and meninges {233,1384,1473}. As with any lesion common to the pleura, there have been examples of solitary fibrous tumour reported in the pericardium and rarely within the heart.

### Clinical features

Clinical features are related to pericardial mass effect.

### Macroscopy

Solitary fibrous tumours tend to be well-circumscribed, firm, fleshy or white

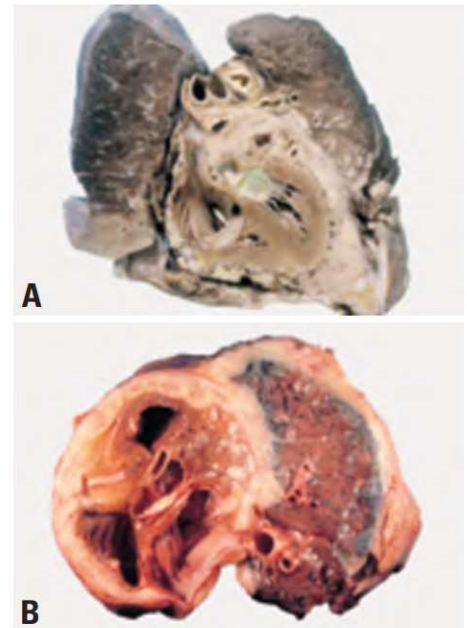
although diffuse mesothelial surface involvement has been described.

### Histopathology

Histologic variability is the rule and multiple growth patterns have been described. Most tumours will have a predominant monomorphic spindle cell pattern resembling low-grade fibrosarcoma although broad tumour cell fascicles are rare. Areas of hypercellularity typically alternate with those that are less cellular. The less cellular areas can be myxoid or contain abundant collagen [459]. Typically the nuclei of tumour cells are closely apposed to collagen bundles. A haemangiopericytoma-like vascular pattern may be conspicuous, present in a small portion of the lesion, or absent. The differential diagnosis includes other monomorphic spindle cell tumours, including neurogenic tumours, spindle cell mesotheliomas, monophasic synovial sarcoma, and fibrosarcoma [1311]. Recently, desmoid tumour of the pleura has been added in the list of differential diagnostic considerations [2151]. See pleural section for additional information.

### Immunoprofile

Solitary fibrous tumours are CD34 and bcl-2 positive. They are consistently negative for epithelial markers, muscle spe-

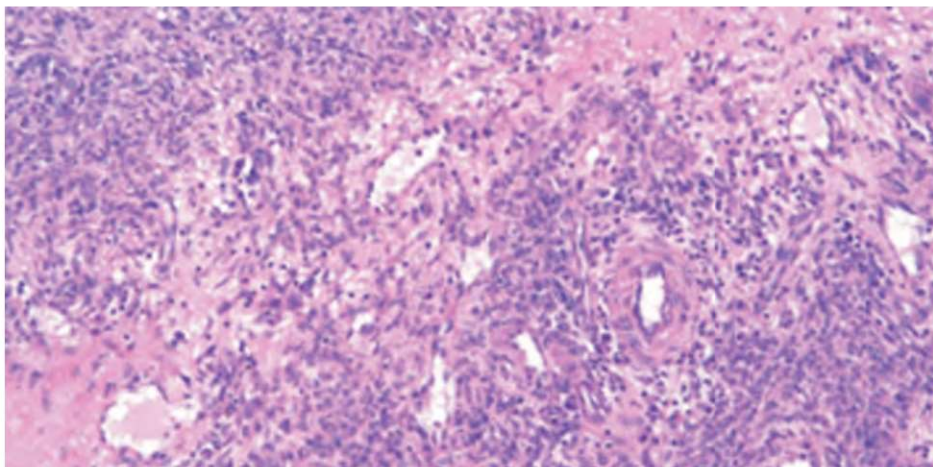


**Fig. 4.39** Mesothelioma of pericardium. **A** Note the extensive tumour encasing the pericardium. **B** In many cases, the pericardial mass is in continuity with pleural mesothelioma.

cific actin, desmin, CD31, CD117 (c-kit), S-100 protein calretinin, and inhibin {596,772,1473,2127}.

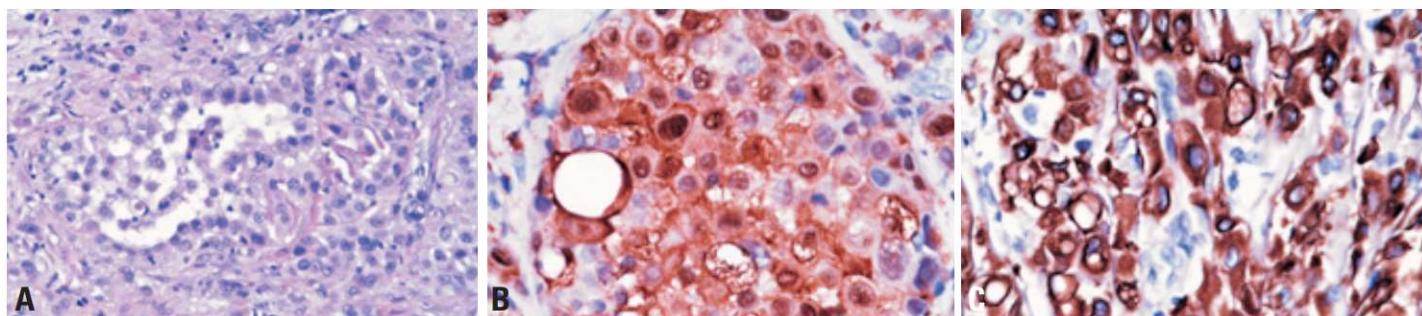
### Differential diagnosis

Sarcomatous mesotheliomas of the pericardium are distinguished from solitary fibrous tumours by their diffuse growth pattern, and keratin and calretinin reactivity. On the other hand, solitary fibrous tumour may closely mimic monophasic synovial sarcoma and low-grade fibrosarcoma. Fibrosarcoma tends to be more architecturally monomorphic and negative for CD34. Monophasic synovial sarcoma has higher grade cytology, plumper nuclei and shows focal keratin reactivity. Endometrial stromal sarcoma, and metastatic granulosa cell tumour may be excluded by negative reactivity for cytokeratin, estrogen and progesterone receptors, and inhibin.



**Fig. 4.40** Localized fibrous tumor of the mesothelium is identical in appearance to those of the pleura. Note the spindle cell growth with prominent vascularity and variable cellularity.





**Fig. 4.41** Pericardial mesothelioma. **A** The majority of pericardial mesotheliomas are epithelioid. **B** Strong expression of calretinin. **C** Strong expression of cytokeratin 7.

### Prognosis and predictive factors

The prognosis is generally good, although recurrences and local spread have been reported. Criteria for malignancy of pleural tumours include necrosis and a mitotic count of greater than 4 per 10 high powered fields, but the applicability of these criteria to tumours in the heart and pericardium is unknown.

## Malignant mesothelioma

### Definition

Malignant mesothelioma arises from mesothelial cells or demonstrates mesothelial differentiation. The definition of primary pericardial mesothelioma stipulates that there is no tumour present outside the pericardium, with the exception of lymph node metastases.

**ICD-O code** 9050/3

### Epidemiology

Mesothelioma of the pericardium represents approximately 0.7% of malignant mesotheliomas [831]. As with mesotheliomas in other sites, the incidence may be increasing, due to the latency between asbestos exposure and tumour development [1074].

### Etiology

Like pleural mesotheliomas, a large proportion of mesotheliomas of the pericardium are induced by asbestos [1074]. Iatrogenically induced pericardial mesotheliomas have been reported decades after exposure to pericardial dusting with asbestos and fibreglass as a treatment for angina pectoris. Therapeutic radiation for breast cancer and mediastinal lymphoma has also been implicated in rare patients. However, there remains a subset of

patients with mesothelioma who have no known exposure history.

### Clinical features

#### Signs and symptoms

The mean age of patients with pericardial mesothelioma is about 45 years, with a wide age range, including elderly, older children and young adults. The initial course is usually related to pericardial effusions. Tamponade may eventually occur [1202].

#### Imaging

Echocardiography usually shows pericardial effusions and may show pericardial thickening. However, because pericardium is at the periphery of the field of view obtainable with echocardiography, MRI or CT are usually necessary. MRI and CT usually demonstrate pericardial fluid as well as pericardial thickening and/or pericardial masses [737].

### Macroscopy

Malignant mesotheliomas of the pericardium can form bulky nodules that fill the pericardial cavity. The tumour can also spread diffusely over the pericardial surface and completely encase the heart. They can further encircle the great vessels and may obstruct the venae cavae.

### Histopathology

Malignant mesotheliomas of the pericardium resemble pleural mesotheliomas. Although the majority are of the epithelioid type, forming tubules, papillary structures, and cords of infiltrating cells that can incite a desmoplastic response, the sarcomatous variant is also common. Variants similar to those described in the pleura may also be seen in the pericardium e.g. microcystic, adenomatoid, deciduioid [1649,1802].

### Immunoprofile

The immunohistochemical profile of pericardial mesothelioma is similar to that of pleural mesothelioma. Expression of mesothelial antigens, such as calretinin, and cytokeratins 5/6 are helpful in the diagnosis, as are negative reactions for adenocarcinoma markers, such as carcinoembryonic antigen.

### Electron microscopy

Ultrastructurally, mesothelioma cells from epithelioid areas contain branched, bushy microvilli. Cytoplasmic tonofibrils are present in approximately 50% of tumours. Asbestos bodies may be identified within pericardial mesothelioma, but are of no diagnostic utility.

### Differential diagnosis

The distinction between mesothelioma and pleural-based lung adenocarcinoma can be quite difficult, and is generally based on immunohistochemical findings. Distinction from reactive mesothelial cell proliferations may also be difficult; in comparison to reactive pleural mesothelial proliferations, reactive pericardial mesothelial cells may be more deeply "invasive". Reactive stromal cells may also often attain bizarre and pleomorphic shapes, confusing the histopathologic picture. Other malignancies that may be confused with mesothelioma include pericardial-based angiosarcoma, which may elicit a prominent mesothelial response, malignant solitary fibrous tumour and synovial sarcoma. Immunohistochemistry is invaluable in such circumstances. Mesothelioma lacks the X;18 translocation of synovial sarcoma.

### Prognosis and predictive factors

The prognosis of pericardial mesothelioma is poor. Fifty per cent of patients



# Exhibit J

RESEARCH ARTICLE

# Malignant mesothelioma following repeated exposures to cosmetic talc: A case series of 75 patients

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## Abstract

**Background:** Asbestos is the primary known cause of malignant mesothelioma. Some cosmetic talc products have been shown to contain asbestos. Recently, repeated exposures to cosmetic talc have been implicated as a cause of mesothelioma.

**Methods:** Seventy-five individuals (64 females; 11 males) with malignant mesothelioma, whose only known exposure to asbestos was repeated exposures to cosmetic talcum powders, were reviewed in medical-legal consultation. Out of the 75 cases, 11 were examined for asbestiform fibers.

**Results:** All subjects had pathologically confirmed malignant mesothelioma. The mean age at diagnosis was  $61 \pm 17$  years. The mean latency from exposure to diagnosis was  $50 \pm 13$  years. The mean exposure duration was  $33 \pm 16$  years. Four mesotheliomas (5%) occurred in individuals working as barbers/cosmetologists, or in a family member who swept the barber shop. Twelve (16%) occurred in individuals less than 45 years old (10 females; 2 males). Forty-eight mesotheliomas were pleural (40 females; 8 males), 23 were peritoneal (21 females; 2 males). Two presented with concomitant pleural and peritoneal disease. There was one pericardial, and one testicular mesothelioma. The majority (51) were of the epithelioid histological subtype, followed by 13 biphasic, 8 sarcomatoid, 2 lymphohistiocytoid, and 1 poorly differentiated. Of the 11 individuals whose nontumorous tissues were analyzed for the presence of asbestiform fibers, all showed the presence of anthophyllite and/or tremolite asbestos.

**Conclusions:** Mesotheliomas can develop following exposures to cosmetic talcum powders. These appear to be attributable to the presence of anthophyllite and tremolite contaminants in cosmetic talcum powder.

## KEYWORDS

anthophyllite, females, mesothelioma, peritoneal, pleural, talc, tremolite

## 1 | INTRODUCTION

Asbestos, a generic term for naturally occurring fibrous mineral silicates, is recognized as a carcinogen by the general medical and scientific communities. In 1960, Wagner et al<sup>1</sup> reported a large series

of malignant mesotheliomas in individuals who had been exposed to asbestos from a South African asbestos mine. It has been demonstrated that all types of asbestos and even brief and low-dose exposures are capable of causing malignant mesothelioma.<sup>2-4</sup> In the 1970s, several types of cosmetic talcum powder products were

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demonstrated to contain asbestos.<sup>5-7</sup> Asbestos fibers in commercial talcum powder have also been shown to become airborne upon application, and repeated exposures to cosmetic talc were implicated as a cause of mesothelioma by Gordon et al.<sup>8</sup> Recently, Moline et al,<sup>9</sup> reported a series of 33 subjects with malignant mesothelioma, whose only known exposure to asbestos was cosmetic talc. We present 75 additional subjects, with malignant mesothelioma, whose only known exposure to asbestos was cosmetic talc.

## 2 | METHODS

One hundred forty subjects with documented exposures to cosmetic talc were initially reviewed. Exposures were identified through sworn deposition testimonies and answers to sworn interrogatories provided from subjects, parents, and spouses. Sixty-five subjects were excluded due to recalled occupational or paraoccupational exposures to other sources of asbestos. Seventy-five subjects, whose only known exposure to asbestos was via cosmetic talc, were included for further examination. The asbestos content of talcum products and airborne asbestos concentrations during simulations of the usage of these products was determined in previously published studies.<sup>10,11</sup>

Tissues from biopsies and/or debulking procedures were examined and the diagnosis of malignant mesothelioma was confirmed by a board-certified pathologist (JCM, TSE, RLK). Immunohistochemical staining results for BAP-1 were available in a few cases but was not routinely performed as a part of this study.

No efforts were made to reconstruct levels of exposure but all subjects had been repeatedly exposed over many years. Eleven cases were examined for the presence of asbestiform fibers (aspect ratio,  $\geq 3:1$ ) in sampled tissues. Nine subjects were examined both by analytical transmission electron microscopy (ATEM) and microprobe analysis (MA) (see Table 2), whereas two were examined by scanning electron microscopy (SEM) and MA (results not shown).

## 3 | RESULTS

The pertinent data from the 75 subjects is shown in Table 1. All had pathologically confirmed malignant mesothelioma. Sixty-four subjects were females, 11 were males. The mean age at diagnosis was  $61 \pm 17$  years, with a range of 14 to 94 years. The mean exposure duration was  $33 \pm 16$  years with a range of exposure from 6 to 65 years. The mean latency from time of first exposure to diagnosis was  $50 \pm 13$  years with a range of 14 to 72 years. A total of 4 of the 75 cases (5%) occurred in barbers/cosmetologists, or in a family member who swept the barber shop. Twelve (16%) were 45 years old or younger (10 females, 2 males) at the time of diagnosis. Forty-eight mesotheliomas were pleural (40 females; 8 in males); 23 peritoneal (21 females; 2 men). Two presented with both pleural and peritoneal disease. There was one pericardial (woman), and one testicular mesothelioma. The majority, 51 (68%) were of epithelioid subtype, 13 biphasic (17%), 8 sarcomatoid (11%), 2 lymphohistiocytoid (3%),

and 1 poorly differentiated (1%). Treatment, therapeutic outcomes, and survival were not determined in this study.

For the 11 subjects whose tissues were examined by ATEM and ASEM, the analysis showed the presence of tremolite and/or anthophyllite in all 11 subjects (Table 2).

## 4 | DISCUSSION

The 75 individuals with malignant mesothelioma caused by asbestos in cosmetic talc is currently the largest series reported to date. Recently, Moline et al reported 33 cases of malignant mesothelioma attributed to exposures to cosmetic talc. Like Moline's work, most of mesotheliomas in the present series occurred in women. Several mesotheliomas occurred specifically in hairdressers/barbers. Similarly, the asbestos fiber types found by ATEM in the tissues examined were comparable to those found in laboratory testing for cosmetic talc.<sup>10-12</sup>

Mesothelioma is recognized as a "signal tumor" of asbestos exposure, that is, if a patient has mesothelioma, it should signal an inquiry into potential asbestos exposure. The presence of asbestos in talc deposits has been recognized since the late 1940s.<sup>13,14</sup> Since the 1960s, laboratory testing has identified asbestos in samples of cosmetic talc.<sup>15,16</sup> Studies have confirmed that the most common types of asbestos present in cosmetic talc are tremolite, anthophyllite, and chrysotile. Industrial asbestos products used in the United States generally contained chrysotile, amosite, and/or crocidolite,<sup>17</sup> and anthophyllite and tremolite were rarely present.<sup>18</sup>

While the latency between exposure and diagnosis in the present study is similar to the average latency for the development of mesothelioma (50 years) reported in surveillance epidemiology and end results program (SEER) data,<sup>19</sup> the average age at diagnosis in this report (61 years) is 11 years younger than that in the SEER data (72 years). In addition, fewer than 3% of mesotheliomas in the SEER data occurred in individuals less than 45 years of age, whereas 16% of mesotheliomas of the present study occurred in individuals less than 45 years of age, and 83% of these cases were in women.<sup>20</sup>

The present report of 75 cases, together with the 35 cases previously reported<sup>8,9</sup> currently brings the number of individuals with confirmed diagnoses of malignant mesothelioma following repeated exposure to cosmetic talcum powder to more than 100. The presence of anthophyllite and tremolite in the fiber analysis of tissues obtained from the 11 subjects in this series, is consistent with a source in cosmetic talc.

Unlike industrial or occupational exposure to asbestos, where materials have been regulated, exposure to asbestos in cosmetic talc has not been widely reported or recognized within the medical community or to the public. Cosmetic talc products are most frequently used by women in the United States, and while the incidence of mesothelioma in women is less than in men, the majority have previously been reported as "idiopathic," indicating no recognized source of asbestos exposure. The present study supports the contention that asbestos exposure through the use of cosmetic talc accounts may account for an uncertain percentage of these cases.



**TABLE 1** Seventy-five mesothelioma cases exposed to talcum powder

Case	Sex	Year of diagnosis	Age at diagnosis	Mesothelioma site	Histology	Estimated years of use	Estimated years of latency
1	F	2017	72	Pleural	Epithelioid	20	57
2	F	2014	51	Peritoneal	Epithelioid	30	50
3	F	2017	50	Pleural	Lymphohistiocytoid	41	50
4	F	2017	57	Peritoneal	Epithelioid	30	52
5	F	2015	65	Pleural	Epithelioid	39	62
6	F	2017	39	Peritoneal	Sarcomatoid	15	39
7	F	2016	29	Pericardial	Epithelioid	29	29
8	F	2017	94	Pleural	Epithelioid	60	72
9	F	2015	80	Pleural	Epithelioid	19	59
10	F	2016	72	Pleural	Sarcomatoid	43	59
11	F	2013	66	Peritoneal	Epithelioid	20	52
12	F	2011	48	Pleural	Lymphohistiocytoid	13	21
13	F	2010	51	Peritoneal	Epithelioid	15	20
14	F	2018	55	Peritoneal	Epithelioid	40	42
15	M	2017	81	Pleural	Sarcomatoid	60	60
16	F	2018	56	Pleural	Epithelioid	48	52
17	F	2017	32	Peritoneal	Epithelioid	25	32
18	F	2017	89	Pleural	Sarcomatoid	40	42
19	F	2019	73	Peritoneal	Epithelioid	47	56
20	M	2016	70	Pleural	Poorly differentiated	50	55
21	F	2015	66	Pleural	Epithelioid	40	43
22	F	2016	45	Pleural	Epithelioid	10	45
23	F	2018	45	Peritoneal	Epithelioid	39	45
24	M	2015	67	Pleural + peritoneal	Epithelioid	35	60
25	M	2017	78	Peritoneal	Biphasic	50	62
26	F	2018	57	Peritoneal	Biphasic	25	57
27	F	2013	14	Peritoneal	Epithelioid	12	14
28	F	2016	67	Peritoneal	Epithelioid	15	59
29	F	2018	73	Pleural	Epithelioid	30	65
30	F	2018	76	Pleural	Biphasic	60	55
31	M	2017	39	Testis	Epithelioid	7	39
32	F	2018	57	Pleural	Sarcomatoid	57	57
33	F	2016	68	Pleural	Epithelioid	38	64
34	F	2017	80	Pleural	Epithelioid	50	60
35	F	2016	63	Pleural	Epithelioid	15	54
36	F	2017	58	Pleural	Biphasic	20	58
37	F	2017	71	Pleural	Biphasic	60	71
38	F	2014	70	Pleural	Epithelioid	41	39
39	F	2016	26	Peritoneal	Epithelioid	20	26



**TABLE 1** (Continued)

Case	Sex	Year of diagnosis	Age at diagnosis	Mesothelioma site	Histology	Estimated years of use	Estimated years of latency
40	F	2016	35	Pleural	Epithelioid	35	35
41	F	2017	72	Pleural	Sarcomatoid	23	60
42	F	2016	68	Peritoneal	Epithelioid	65	68
43	F	2018	77	Pleural	Biphasic	30	55
44	M	2015	58	Plural	Biphasic	6	49
45	F	2017	72	Peritoneal	Biphasic	30	42
46	F	2017	59	Pleural + peritoneal	Epithelioid	15	44
47	F	2016	80	Pleural	Biphasic	16	52
48	M	2019	71	Pleural	Epithelioid	40	57
49	F	2017	72	Pleural	Biphasic	58	58
50	F	2017	43	Peritoneal	Epithelioid	43	43
51	F	2017	75	Peritoneal	Sarcomatoid	55	59
52	F	2015	30	Pleural	Epithelioid	20	20
53	F	2017	79	Pleural	Biphasic	65	61
54	F	2017	66	Peritoneal	Epithelioid	20	60
55	F	2015	64	Peritoneal	Epithelioid	40	40
56	F	2017	24	Pleural	Epithelioid	12	24
57	M	2017	72	Pleural	Epithelioid	30	56
58	M	2017	74	Peritoneal	Epithelioid	30	52
59	M	2015	30	Pleural	Epithelioid	20	30
60	F	2016	81	Pleural	Sarcomatoid	52	52
61	F	2017	58	Pleural	Epithelioid	58	58
62	F	2016	75	Pleural	Epithelioid	8	47
63	F	2011	88	Pleural	Epithelioid	21	71
64	F	2016	73	Peritoneal	Biphasic	41	60
65 <sup>a</sup>	M	2017	64	Pleural	Epithelioid	18	40
66 <sup>a</sup>	F	2014	69	Pleural	Epithelioid	16	60
67 <sup>a</sup>	F	2014	44	Peritoneal	Epithelioid	30	39
68 <sup>a</sup>	F	2016	68	Pleural	Epithelioid	53	52
69 <sup>a</sup>	F	2016	72	Pleural	Epithelioid	40	51
70 <sup>a</sup>	F	2016	67	Pleural	Epithelioid	37	53
71 <sup>a</sup>	F	2017	58	Pleural	Epithelioid	41	46
72 <sup>a</sup>	M	2016	44	Pleural	Epithelioid	43	44
73 <sup>a</sup>	F	2017	51	Pleural	Epithelioid	28	49
74 <sup>a</sup>	F	2015	47	Pleural	Epithelioid	15	40
75 <sup>a</sup>	F	2014	62	Pleural	Biphasic	14	53

<sup>a</sup>Tissue analysis performed.

The present study has several limitations. It is both retrospective and uncontrolled, and the cases were submitted in medico-legal consultation, all of which potentially introduce bias. However, detailed deposition testimonies provide a level of detail concerning product

exposure—including dates of exposure, duration, and frequency—that is rarely obtained in routine medical exposure histories, and which allowed for corroborating witness testimony in some cases. The strengths of the current series include its size, as malignant mesothelioma is a rare disease

**TABLE 2** Fiber detection in tissue digestion from nine cases of malignant mesothelioma

Case	Mesothelioma site	Asbestos type	Tissues examined	Concentration (fibers per gram of wet tissue) Lung, lymph node, omentum, ovary	Limit of detection (fibers per gram of wet tissue) Lung, lymph node, omentum, ovary	Tissue digest weight (g) Lung, lymph node, omentum, ovary
65	Pleural	Anthophyllite, tremolite	Lung, lymph node	8625	4313	0.08, 0.34
66	Pleural	Anthophyllite	Lung, lymph node	15 333, 23 000	7667, 1150	0.06, 0.06
67	Peritoneal	Anthophyllite, tremolite	Omentum, lymph node	1917, 1725	639, 1725	0.54, 0.20
68	Pleural	Anthophyllite, tremolite	Lymph node	3044	1015	0.82, 0.34
70	Pleural	Anthophyllite, amosite, chrysotile	Lymph node	17 250	3450	1.06
71	Pleural	Anthophyllite, tremolite	Lung, lymph node	4313, 857, 3451	2156, 857, 575	0.16
72	Pleural	Anthophyllite, tremolite	Lymph node	17 250	3450	0.02
74	Pleural	Anthophyllite, tremolite	Lung	2300	460	2
75	Pleural	Anthophyllite	Lung, ovary	3450, 2070	1150, 2070	0.6, 0.2

Note: All cases shown were examined by analytical transmission electron microscopy and structures analyzed by microprobe analysis.



(1-2 cases per 100 000), and its novelty, as exposures to cosmetic talc are rarely considered by most medical practitioners when they are eliciting an exposure history to asbestos.

The findings of the present and other recent studies suggest that cosmetic talc may be a cause of malignant mesothelioma. Large-scale controlled studies will be required to assess the prospective risk of developing mesothelioma following repeated exposures to talc. Although cosmetic talcs are not currently regulated by the Food and Drug Administration, the poor prognosis of malignant mesothelioma may warrant regulation or the withdrawal of cosmetic talcs from the market, as nontoxic alternatives such as corn starch are presently available.

## CONFLICTS OF INTEREST

Drs Emory, Maddox, and Kradin have testified in asbestos litigation, primarily for plaintiffs.

## DISCLOSURE BY AJIM EDITOR OF RECORD

John D. Meyer declares that he has no conflict of interest in the review and publication decision regarding this article.

## AUTHOR CONTRIBUTIONS

JCM and RLK developed the concept and the design of the work. JCM initiated the acquisition and developed the initial data analysis. TSE reviewed the materials, performed the statistical analysis, and was the primary author of the manuscript. RLK revised and gave the final approval of the version to be published.

## ETHICS APPROVAL AND INFORMED CONSENT

As these cases were selected from medical-legal consultation practice and no identifying information was included, there was no formal institutional consent nor informed consent required.

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